HELSINKI SCHOOL OF ECONOMICS (HSE)
Department of Accounting and Finance

GLOBALIZATION, DEMOCRACY AND THE INVISIBLE HAND:

Stock Market Reactions to International Political Events

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HELSINKI SCHOOL OF ECONOMICS (HSE)
Master's Thesis in Finance
Abstract

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Thomas Grönholm

Globalization, Democracy and the Invisible Hand: Stock Market Reaction to International Political Events

Purpose of the study
The objective of this thesis is to extend the scarce literature on the interaction of international relations and stock markets. Firstly, my objective is to explore how financial markets react to international political events and secondly to investigate which political characteristics alter the stock markets reactions to political events.

Data and methodology
Selecting samples of bilateral political events from the *10 million international dyadic events* data set made public by King and Lowe (2003), matching the events according to their political intensity by using Goldstein (1992) conflictive-cooperative scaling and testing their stock market effects by using index data of 32 countries, I investigate how markets react to political events and on the other hand which country characteristic alter the magnitude of reactions in stock markets. I use a classical event study methodology to identify cumulative abnormal returns of political events and further a multivariate OLS regression model to analyze specific characteristics of stock market reactions.

Results
After conducting several event studies in multiple markets separately, both country and industry level, it seems that markets are relatively ignorant to extreme bilateral political events, whereas compared to less political events, i.e. fatal terrorist attacks, the expectations of investors seem to change more significantly. However, by using a full spectrum of political events in aggregated data set, I am able to identify some common political characteristics that mediate stock market sensitivity to international political events. My results show that features of globalization, namely the level of social and political integration, as well as political culture and civil liberties reduce the sensitivity of stock markets. This result supports the evidence (Fearon, 1994 and Garztke and Li, 2003), which claim that domestic audience costs mechanisms are able to mitigate the disputes in international community.

First of all these results provide new evidence on the stock markets effects of international politics, but secondly also reveal interesting aspects of domestic political features which stabilize stock markets. Consequently, this study provides also new valuable insight to the ongoing debate concerning the causes of war and peace.

Keywords: International relations, political events, market reactions, liberal peace

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Globalization, Democracy and the Invisible Hand:
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Tutkielman tarkoitus
Tutkimukseni tavoitteena on laajentaa kansainvälisten suhteiden ja osakemarkkinoiden vuorovaikutusta käsittelevää kirjallisuutta. Ensinnäkin tavoitteenani on selvittää kuinka osakemarkkinat reagoivat kansainvälisiin poliittisiin tapahtumiin ja toiseksi tutkin mitkä poliittiset ominaisuudet muuttavat markkinoiden reaktioita suhteessa poliittisiin tapahtumiin.

Tutkimusaineisto ja metodologia
Valitsen tutkimukseeni useita merkittäviä kahden maan välisiä poliittisia tapahtumia käyttäen hyväksi *10 million international dyadic events* –aineistoa (King ja Lowe, 2003), painotan poliittiset tapahtumat niiden poliittisen painoarvon mukaan yhteistyö-ristiriitaisuus –asteikolla (Goldstein, 1992) ja testaan näiden tapahtumien vaikutusta osakemarkkinoilla käyttäen markkinaindeksidataa yhteensä 32:sta maasta. Tutkin myös miten maakohtaiset ominaisuudet määrittävät markkinareaktioiden voimakkuutta. Käytän tutkimuksessani perinteistä *event study* –menetelmää määritelläkseni poliittisista tapahtumista seuraavia ylisuuria tuottoja. Osakereaktioihin vaikuttavia poliittisia ominaisuuksia selvitän käyttämällä regressioanalyysia.

Tulokset
Tarkasteltuani useita osakemarkkinoita erikseen, saamieni tulosten mukaan osakemarkkinat eivät näytä merkitsevästi reagoivan merkittäviin kahdenvälisiin poliittisiin tapahtumiin. Kun tuloksia verrataan vähemmän poliittisiin tapahtumiin, tässä tapauksessa kansainvälisiin terroristi-iskuihin, sijoittajien odotukset näyttävät muuttuvan niiden seurauksesta selkeämmin. Kun taas tarkastelen koko poliittisten tapahtumien kirjoa yhtenä kokonaisuutena, pystyn identifioimaan yhteisiä maakohtaisia tunnuspiirteitä jotka säätelevät osakemarkkinoiden herkkyyttä suhteessa kansainvälisiin poliittisiin tapahtumiin. Tulokseni osoittavat että globalisaation piirteet, erityisesti sosiaalinen ja taloudellinen integroituminen, kuten myös maan poliittisen kulttuurin sekä kansalaisoikeuksien taso vähentää markkinoiden herkkyyttä poliittisiin tapahtumiin. Tämä tulos tukee signalointianalyysiä (Fearon, 1994; Garztke ja Li, 2003), jonka mukaan maan ominaisuudet jotka nostavat poliittisten viestien kansallista kustannusta pystyvät vähentämään myös kansainvälisestä yhteydenpidosta syntyviä poliittisia kiistoja.

Tulokseni näyttää uusia merkkejä kansainvälisen politiikan vaikutuksista osakemarkkinoihin sekä paljastaa mielenkiintoisia näkökulmia poliittisista ominaispiirteistä jotka vakauttavat osakemarkkinoita. Näin ollen, tämä tutkimus antaa myös uutta arvokasta tietoa edelleen käynnissä olevaan keskusteluun sodan ja rauhan aiheuttajista.

Avainsanat: Kansainväliset suhteet, poliittiset tapahtumat, markkinareaktiot, liberaali rauha

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The kind of economic organization that provides economic freedom directly, namely, competitive capitalism, also promotes political freedom because it separates economic power from political power and in this way enables the one to offset the other.

-Milton Friedman, *Capitalism and Freedom* (1962)

1 Introduction

During the past decades one of the most significant topics in global economy has been the globalization and its multifaceted effects. The global integration has been witnessed in many various fields, ranging from social globalization to political and economic globalization. In financial markets the most explicit evidence of globalization has been the increasing liberalization of stock markets and consequently a huge increase of international capital flows. On the other hand the international trade has expanded as well, altering significantly the operational environment of companies. As the efficient market mechanism is crossing national borders, international relations and political characteristics of countries become consequently very interesting questions also for the finance field, both in the perspective of academics as well as practitioners. On the other hand, the interplay of international relations and economic interconnectedness is important to discuss in order to understand which factors cause war and peace. Political characteristics, such as democracy, level of economic integration and freedom are above all important societal questions, but seldom investigated in a finance perspective.

1.1 Background and motivation

The discovery that more democratic and more economic integrated dyads fight seldom has led many academics (e.g. Oneal and Russett, 1999; Polachek and Seiglie, 2006) and policymakers (e.g. Clinton, 2002; Bush, 2004) to support the theory of liberal peace, i.e. economic interdependence leads to peace. Despite the centuries old philosophical background, as well as the wide political and academic support for the concept, the methodological choices and causality questions are still highly debatable in the literature. Convincing arguments on the accurate direction of causal arrows has remained weak. Firstly, many other factors, such as the peace itself, seem to also enhance democracy and economic interconnection leading many studies easily to a circular argument; and secondly the research of interdependence and conflicts often emphasizes the states as the only relevant actors, excluding often the non-state actors and social

aspects. Consequently, the literature often neglects to discuss the interaction between the states and the private sector when investigating the causes of war and peace.

In fact, the evidence on international disputes by Fearon (1994) shows that the ability of a society to produce audience costs enables leaders to communicate more efficiently and thus resolve the differences peacefully. Gartzke and Li (2003) complements the train of thought by showing that economic integration has an ability to increase the audience costs and thus reduce costly signalling of leaders, making their communication more credible and eventually decrease conflict escalation. Undoubtedly, financial markets obtain a powerful capability to interpret any signals that might have an effect on expectations of the future. In autonomy of global capital markets, investors are able to respond to political events and to anticipate political crises or resolutions presumably efficiently.

The economic impacts of international politics have been studied widely in political science literature, but for some reason the topic has been discussed surprisingly little by the academics in finance. Furthermore, the research of international political relations has taken a fast leap in its methodologies recent years. Automatically coded extensive event data sets and sophisticated event frameworks have replaced the era of analysing international events from hand-collected data sets. These enhancements provide interesting research possibilities also for finance research. Moreover, the increase of international capital flows has made the world more interconnected than ever. The studies of interdependence and conflict concentrate often solely on aggregate trade flows, although economic interdependence through international capital is substantially larger than exchanges of goods and services. Financial markets link characteristics of domestic economies that otherwise have little exposure globally. Thus financial markets in particular offer an excellent avenue to investigate the international relations and its far-reaching implications.

1.2 Research questions and objectives

In this study I investigate the effects of international political events to financial markets and furthermore examine the political and economic country characteristics that have an influence to

the market sensitivity. More specifically, I examine how the nature and the magnitude of bilateral political events affect to the intensity and direction of stock price changes and further how country specific political characteristics, such as globalization and democracy, possibly explain these changes. In addition, I investigate what market reactions negative or positive bilateral actions do have in countries where the political events are targeted and compare these effects with the reaction of less political non-economic shocks, namely terrorist attacks, in different industries.

Most importantly, differing from earlier studies, I use the information of stock markets to investigate what country characteristics have a positive externalities in international relations. My objective in this study is to extend the finance literature by showing new information on stock market reactions of international politics, but also to provide new insight for the political science discussion on causality of war and piece.

1.3 Main results and contribution

The first part of my results suggest that stock markets seems to be relatively ignorant to bilateral political events, whereas compared to less political non-economic events, i.e. fatal terrorist attacks, the expectations of investors seem to change more significantly. This is the case when investigating markets separately at the country and sector level.

However, by using aggregated sample of 44 832 political events in 29 markets, I am able to identify some political characteristics that explain stock market sensitivity of bilateral political events. In fact, the second part of my results show that features of globalization, specifically the level of social and political integration, as well as two democratic features, i.e. political culture and civil liberties, reduce the sensitivity of stock markets to political events. In other words, it seems that countries with these characteristics are less sensitive to political signals. I interpret this result not as ignorance of more developed countries to international politics but as important evidence that these characteristics decrease the political uncertainty in international system. These results are in line with the evidence of Gartzke and Li (2003) that global capital markets

can facilitate the communication between countries and thus reduce the reliance on military force.

First of all this result is interesting as it provides new evidence on market behaviour, but secondly it also reveals some new pacifying aspects of globalized capitalism in the international system. Consequently, this study provides also new valuable insight to the ongoing debate of causality issues of liberal peace. Importantly, this study provides relevant links for further research of this ambiguous but still utmost relevant question.

1.4 Structure of the paper

The rest of the paper is organized in the following manner. Section 2 presents the literature review around the topic. After that, section 3 presents the hypothesis of the study. Section 4 describes the data of the study, whereas section 5 discusses the methodology. Section 6 presents the results and the section 7 is for summary and conclusions. The references of this study I present finally in section 8.

2 Literature review

In this literature review I discuss the most relevant theoretical concepts and empirical evidence in the nexus of international relations and financial economics. The main focus of this review is to set up a basis for my empirically testable hypothesis, but in order to build those hypotheses I need to summarize some conceptual discussion of the political and social science literature. First I discuss the background and theories behind international relations and political economy and then I provide empirical evidence around these theories. Lastly, I discuss on stock market reactions to international political events. Consequently, section 2.1 describes the background of international relations, whereas section 2.2 presents the literature on the relationship of international politics and economics. Finally, section 2.3 focuses on the empirical evidence on stock markets effects of international politics.

2.1 International relations

Definition of international relations

Oxford Political Dictionary (2003) defines international relations as a discipline that investigates interactions between states and the international systems as a whole. It is a multidisciplinary field consisting of international aspects of politics, economics, sociology, history and law. On the other hand it is not only an academic field that positivistically analyzes a certain phenomenon, but also a public policy field that normatively seeks to formulate foreign policy of states. Also, each of its reductive sub theories relies on different set of assumptions and can thus be also conceived differently depending on what question it tries to answer. Thus, due to its multifaceted nature, international relations is a concept that is almost impossible to define extensively and objectively. When International Relations (IR) is written in capital letters it sometimes refers to the academic discipline, whereas spelled in lower case it refers to the totality of interaction within the international system (Oxford Political Dictionary, 2003). In this study I will use the term international relations, written in lower case, in both contexts.

Sovereignty of nation-states

The development of international relations study has been strongly related to wars. Although, the discipline itself was explicitly recognized not until after the World War I, the history of international relations has its roots in the Treaty of Westphalia in 1648 when the modern state was developed: the peace treaty after the Thirty Years War in Europe instituted the legal concept of sovereignty of states meaning the rise of independent nation-states, diplomacy and armies. This European system was furthermore exported to other continents through colonialism and was finally established after the WWII forming the contemporary international system (concept of sovereignty, see e.g. Standford Encyclopedia of Philosophy, 2003).

Orientation and focus of the literature

The concept of sovereignty defines still significantly the current state of international relations, and it is especially important aspect when examining international conflicts. It is also concept which construction distinguishes generally the two most prevalent schools in international relations theories, namely liberalism and realism. In realism the sovereign nation-state is the primary actor, whereas in liberalism the emphasis is on individuals. At this point, it is important to point out that international relations are divided in number of different schools and each school have various sub categories. Nevertheless, in the following section I concentrate to discuss only the two major strands of international relations, realism and liberalism, as they provide an applicable avenue to investigate the interplay of international relations and economics. The literature of liberalism and realism in international relations context is also a diverse and extensive, but in this study I discuss only the most relevant parts of this field. In the next subsection I investigate concisely the implications of liberalist and realist theories for international relations and economics.

Another challenge of this multidisciplinary research area is its very diverse research methods and orientations; the discussion is often also politically slanted. On the other hand the historical and philosophically rich background of political economics creates interesting intersections with modern research fields and provide thus attractive opportunities to find new questions, and perhaps also new answers. This study tries to take the conceptual discussion of the political

economy research into account, but eventually focuses to identify causal relationships based on empirical data and econometrical methods, in order to extend the discussion of financial economics and political science.

2.2 Liberalism and realism in international relations

As I discuss above, in the context of international relations the basic assumptions of liberalism and realism differs significantly. This divergence is rather interesting as the key assumptions of liberalism are the cornerstone of the modern economic system, whereas the realist thoughts has been an important doctrine for independent nation-states during centuries, and is that furthermore; liberalism focuses on individuals as primary actors, whereas in realism the principal actors are sovereign states (see e.g. Hegre, 2005). The realist theories include assumptions that international system is anarchic and the relations among countries are determined by their relative power that is derived from military and economic resources. The perspective also stresses that states are rational actors, whose primary interest is the national security. The discipline of realism developed not until than after Word War II, but the assumptions for the concept have been expressed already by Niccolò Machiavelli in The Prince (1532) and Thomas Hobbes in Leviathan (1651) among others. And, in the history of international relations the doctrine of maximising the state security and national interests has been indeed witnessed many times in modern European history, most evidently perhaps during the Cold War.

As the Hobbesian and Machiavellian perspectives provide the foundations of realism and behaviour of nation-states, the enlightenment philosophers provide the basis for liberalism and individualism. In the perspective of international relations one of the most important influencers was the enlightenment philosopher Charles Montesquieu who declared in the Spirit of Laws (1748) that *peace is the natural effect of trade*. Ever since the hypothesis has been argued for and against by politicians and scientists; and the topic is still hot in the research community. The Era of Enlightenment is also commonly held as a source of democracy, freedom and reason as central values of society, which have also arguably formed the basis of capitalism and market mechanism to our societies. Moreover, the pioneers in economics, such as Adam Smith and

David Ricardo, started to link these liberalist thoughts into their works of economics showing that free trade and liberty for individuals leads to a positive-sum game in an international system. This development of liberalism and individualism has also set the primary assumptions of modern finance. As we know, in most economic models investors are expected to be utility maximizing and rational. In the next sub sections I discuss more specifically some aspects of international relations, namely security dilemma, liberal peace hypotheses and commercial liberalism.

2.2.1 Security dilemma

One of the most central concepts derived from the realist's state-centred view is the 'security dilemma', which denotes the self-defeating aspect of cumulating power (Glaser, 1997; Snyder, 1984; Jervis 1978). If one country increases its security, it decreases the security of others; and even if the country that starts to accumulate power for defence does not have intentions to attack, the relative power increase leads the other states to regain the security loss by increasing their own security. The outcome is that the initial level of security stays unchanged. The concept of security dilemma has similar characteristics to classical prisoner's dilemma, as it assumes also a type of non-zero game, where both players may either cooperate with or betray the other. Thus, according to these cognitive theorists of international relations, wars arise as countries are failing in their communication. Theoretically, the countries can never be sure of each other's plans, and therefore the war is always a possibility, and perhaps sometimes inevitable. The arms race between Soviet Union and United States during the Cold War illustrates well this negative cycle of accumulating power. A military conflict between two countries is not only a severe international occurrence, but also an extremist example of a failure of international community and it characterizes the problems of international relations also more in general. Due the fact that each country is sovereign, there are no authorities or institutions that can enact and enforce international laws. Therefore, mutual agreements of cooperation that reward all parties are not solid, as it requires all parties to cooperate, but in the end it cannot be controlled. Consequently, international system is often regarded as anarchy (see e.g. Jervis 1978).

2.2.2 Liberal peace

But liberalists have another perception how to increase security and peace: in contrast to the realists' notion of maximizing state power, the liberalists argue that both international and domestic security increases when individuals have control of economic and political questions. The concept of liberal peace is often referred also to democratic peace theory or simply to democratic peace (see e.g. Doyle, 1983 and Hegre, 2005). According to this hypothesis pairs of countries that have stronger trade ties are also more peaceful, because both parties benefit from the trade, i.e. two countries with mutually beneficial trading relationship do not want danger their positions.

The hypothesis claims also that democratic states are more peaceful than other regime types. This concept is based on the assumptions that individuals have self-interest in peace, because individuals obtain material and immaterial well being only during peace. Therefore emphasizing the national authority over individuals becomes a complex and perhaps questionable issue, as in the individual point of view the potential international conflict would not be beneficial. Interestingly the theory of liberal peace has not been studied widely not until the late 20th century, although Immanuel Kant initiated the concept already in his essays *Perpetual Peace* in 1795. He predicted that the world would see a commercial interaction among free republics and an expanding zone of peace. Kant's theory claims that if majority of people could decide, they would never go to war unless in self-defence. In other words, if all countries were republics, there would not be arbitrary rulers and hence no wars.

One plausible explanation why the Kantian argument of peace has not received wide attention among international relations theorists not until the last decades might be the fact that democratic governments has been relatively scarce: imperialism, nationalism and strong leaders have eventually characterized the history of nation-states. On the other hand the recent expansion of structured historical data and developed statistical methods has also enabled to test these democratic peace hypotheses. Consequently, Bremer (1992) shows that conditions, which characterize a war-prone dyad (i.e. pair of two countries), are the geographical presence, the absence of alliance and advanced economy and the absence of democratic polity. Similarly, Maoz and Russet (1993) support the democratic peace by examining two explanatory models, namely

1) *normative model* suggesting that democracies do not fight because norms of cooperation prevents the conflicts of interest to lead violence and 2) *structural model* stating that institutional constraints imposed by complex political processes prevent leaders of two democracy to confront. Using different data sets of international conflicts they find evidence for both the normative and the structural models. Although liberal peace has become a mainstream theory, the proponents of realist theories have also raised new objections towards it. However, opposition seem to stay more on the methodological level rather than in the question whether democratic peace exists (see e.g. Kinsella 2005).

2.2.3 Commercial liberalism

Above I describe the main debate between realist and liberalist theories of international relations, but nonetheless, one has to remember that the different variants of both main theories rest on different specifications. As the liberal (democratic) peace theory brings out, the state preferences are in an important role when testing the liberal hypotheses in international relations context. Consequently, Moravcsik (1997) discuss different variants of liberal theories that stresses different aspects of state behaviour and society preferences. He claims, namely, that the social context of states has a fundamental impact on how the countries actually behave in international context. Based on these distinctive causal mechanisms linking the societal and state aspects, he divides the liberal theory into ideational liberalism, republican liberalism and commercial liberalism. Republican liberalism variant, close to the idea of democratic peace concept, stresses the causal importance of state-society relations, which are based on the domestic political institutions, whereas commercial liberalism stresses transnational economic interchange when analysing the state behaviour and preferences. In other words, commercial liberalism is a strand of liberal international relations theory that claim free trade and economic interdependence between countries lead to peaceful relations. Multinational companies and global financial institutions often advocate this view also, as national constraints increase costs and risks of their operations.

2.3 Theories and evidence on the relationship of politics and economics

Liberalism and realism are not exclusionary theories, but they provide two important frameworks to analyse international relations: liberalism offers important insight on individuals and market mechanism, whereas realism provides the game theoretic aspects of sovereign states. In this section I discuss first the traditional trade-conflict concept, secondly the causality problems of liberal peace assumption and thirdly I cover signalling theories in international relations. The fourth and fifth sections are important for my hypothesis as they cover the discussion of the characteristics of democratic and globalization in international relations. During the next sections I will also present some anecdotal examples to colour the discussion.

2.3.1 Trade-conflict relationship

In the discussion of relationship of politics and economics, the liberalist *peace-through-trade* approach seems to be the most common one among the researchers. One of the recent comments on the trade-conflict topic has been a study by Polachek and Seiglie (2006). By building an analytical framework and then providing empirical evidence they show that higher gains from bilateral trade decrease the level of conflict between the two trading countries. And furthermore, their empirical results suggest that the hostilities decrease by 20% as the trade doubles between two countries. They analysed the trade and peace relationship particularly in a dyadic (i.e. bilateral) standpoint, because according to their analysis attributes of only single countries would not provide accurate answers to the topic. Nor would it provide sufficient answers if the political system would be investigated as a whole. This is also the reason why dyadic approach is commonly used in the conflict-trade literature, though also many insightful multilateral studies have been done; see e.g. Feng (1994), Polachek et al. (1999) Dorussen (1999), Hegre (2002).

An important ingredient in the trade-conflict discussion is also the level of democracy of the interacting countries. Polachek and Seiglie (2006) show also that democracies, unlike non-democracies, tend to fight less and cooperate more with each other, supporting once again the democratic peace proposition. Gelpi and Grieco (2001) claim also that the economic

interdependence may reduce the risk of conflicts between democratic countries, whereas between non-democracies the risk of conflicts can increase. According to them combined influence of economic interdependence and democracy may create an environment that enhances peace, whereas the absence of democracy can destroy the positive effects of interstate economic relations. Nevertheless, these studies seem not to probe to the real causes of international conflicts and address the causality convincingly.

Peace through trade or free trade?

McDonald (2004) criticizes the commercial liberalism literature for neglecting some essential components that the classical literature of war and trade provides. He claims that trade and free trade have to be distinguished when analysing the trade-conflict relationship. Although international commerce may build interdependence among countries and thus making wars less likely, the nature of the trade system seems to be very important factor. He argues that state-society interaction plays an important role in the link between trade and conflict: groups that loose due the international trade are unlikely to support pacifying foreign policy that would increase multilateral trade. Moreover, the state is not always a neutral actor when making decisions between commercial and foreign policies, which makes lobbying easier. Grounding the arguments to the liberal hypothesis that focus on individual incentives, McDonald claim that free trade reduces military conflicts in the international system by eliminating the domestic battle over commercial and foreign policies.

Irrelevance of economic ties

In addition to the arguments that trade (i.e. economic ties) increases peace and trade increases conflict, one group of realists claims also that trade is eventually irrelevant to the emergence of conflicts. These theorists emphasize the role of economic relations as a minor factor when national security issues and military factors are in consideration, see e.g. Bueno de Mesquita's (1985) discussion on utility of conflict. Levy (1998) notices also that the debate between liberalists and realists has distracted the discussion too much to the paradigmatic level. He claims that international relations needs to shift its attention from the level of paradigms to the level of theories, focus on constructing theories and testing them against the empirical evidence, and

leave the question of whether a particular approach fits into a liberal or realist framework to the intellectual historians.

Foreign direct investments and conflicts

The evidence of Polachek, Seiglie and Xiang (2005) confirm that there are similar characteristics between trade and FDI (foreign direct investment). FDI seems to have a significant positive effect on the independent variable of net cooperation. Polachek et al. (2005) show also the relationship other way around, i.e. cooperation has a significant positive impact on FDI. According to their model, a one per cent increase in net cooperation will increase FDI by 1,04%. Similarly, Desbordes and Vicardi (2005) show that both domestic and international political instability has a negative effect to the location choices of multinational enterprises and on FDI in developing countries. They find evidence that good diplomatic relations have a positive impact on FDIs, whereas conflicts on the host country lead to negative impacts on FDI. But similar to trade-conflict models, the preceding results raise important questions on accurate causal relationships and problems of endogenous variables. I will discuss the causality issues more below.

Also, the traditional trade-conflict literature often neglects the question of asymmetrical trade. The trade gains are seldom completely symmetrical for both trading countries, which may cause some conflicts and power games. This is the argument of many realist theorists, also known also as Marxian –based theorists, who oppose the liberalist pacifying assumption.

Economic ties and politics – Russian example

An illustrative example of an asymmetrical trade relationship is the recent gas dispute between Russia to Ukraine. According to BBC News (February 29, 2008) the Russian state-run Gazprom reduced its gas supplies to Ukraine by 25% because the parties could not agree for the details of the outstanding debt. The dispute had become high in the political agenda, as the presidents of both countries were negotiating on the issue. Western commentators accused Russia for using the state owned gas monopoly as a political tool. On March 2, BBC News wrote that Gazprom threatened to reduce the gas supply further 25% whereupon Ukraine threatened to cut the gas supply to Europe, as large amount of Russia-Europe gas trade goes through the pipelines in

Ukraine. The same conflict has occurred also before: in 2006 Ukraine in fact cut the gas supply to Europe.

This specific example shows how the asymmetrical relationship of gas trade between Russia and Ukraine led to high-level political disputes. It illustrates also how easily political relations can have an effect on the economic fundaments: as on distribution of necessary energy resources. According an article by F. Willian Engdahl in Global Research, the motives of Russia is partly commercial and geopolitical. He claims that the behaviour of the Russians is a response to the fact that Ukraine is moving towards EU and NATO.

Consequently, the peace through trade theory is not as unambiguous as one might think. In fact to oppose this liberalist view, Barbieri (1996) shows contradicting claims to the peace through trade hypothesis. Barbieri shows evidence that the level of economic interdependence influences strongly on the occurrence of militarized dispute. She contends that extensive economic ties may in fact increase the likelihood of militarized conflicts, although countries that are mutually dependent trading partners have a larger probability to avoid conflicts. Barbieri's important observation is that an extreme international interdependence, whether it was asymmetrical or not, increases the potential for conflicts. On the other hand, Oneal and Russett (1999) argues against Barbieri's constructions by showing strong evidence that democracy and economic interdependence once again do increase peace. And in contrast, they do not find support that asymmetric trade would increase conflicts.

The history of imperialism shows that military power is often used jointly with construction of new economic strategies. The assumption of scarce resources has inspired a group of realists to claim that trade may increase conflicts. The realists argue namely that countries in fact can use military force to achieve better gains from trade by exploiting weaker countries. Rosecrane (1986) criticizes the liberalist notion that peaceful trade would always be a desirable substitute for military conflict for acquiring resources. This critic seems to be justified as many practical examples show, the Ukrainian gas dispute being one of the most recent examples defending this realist view.

Propagating democracy – foreign policy of United States?

Another example of power politics is the foreign policy of United States. Because of its military and economic hegemony, its military actions are often criticized for protecting only its own interest and exploiting weaker countries. Interestingly, the country is probably one of the strongest propagators of democratic peace:

"I believe the renewed strength of the democratic movement, complemented by a global campaign for freedom, will strengthen the prospects for arms control and a world at peace." Ronald Reagan (1982)

"Ultimately, the best strategy to ensure our security and build a durable peace is to support the advance of democracy. Democracies do not attack each other; they make better partners in trade and diplomacy." Bill Clinton (2002)

"And the reason why I'm so strong on democracy is democracies don't go to war with each other. And the reason why is the people of most societies don't like war, and they understand what war means. -- I've got great faith in democracies to promote peace." George W. Bush (2004)

The three excerpts of US presidents' speeches above are almost perfectly in line with the Kantian peace hypothesis. In the perspective of realist-liberalist discussion, the US foreign policy seems as a paradox: on the other hand it advocates the idealism of liberal and democratic peace but on the other it fights continuously to obtain its national security. An example of this peculiar security dilemma perceived by United States is the latest war on terrorism, realizing as campaigns in Afghanistan (2001-) and Iraq (2003-) during the George W. Bush administration. It is also debatable if changing the regime type to (more) democratic, as propagated by US presidents, eventually has a pacifying effect. On the academic side the question is very much related to the problematic causality issue of liberal peace, which I will discuss next.

2.3.2 Causality and endogenous variables in liberal peace theory

Investigating the determinants of international peace the researchers face regularly the so-called causality problem. This is indeed very common among social sciences that are influenced by many difficult-to-measure political, social and economical factors. Estimating the accurate causal relationship empirically is difficult specifically, because of strong endogeneity of variables and omitted variable bias. Consequently, resolving the causal arrows of political and economic liberalism appears to be very challenging task among the academics. As I discuss above, the liberal hypothesis and the consequent empirical evidence suggest that both investment flows and bilateral trade improve international relations. These economic factors seem to reduce the degree of international conflicts and on the other hand encourage cooperation. However, a peaceful non-violent environment seems to increase also investment flows and trade. This simple example illustrates why the argumentation leads easily to the fallacy of circular cause and consequence, which cannot convincingly provide evidence on the causal relationship, but merely on the correlation of two variables.

For example, many studies (see e.g. Sambanis, 2001) examine the association between economic conditions and civil wars in Africa, but fail to provide convincing answer for the causality arrow; i.e. whether poverty really causes civil wars or do civil wars actually cause poverty or do both happen simultaneously. One way to tackle this problem is to find a consistent estimator of a parameter, which act as an instrumental variable. Miguel, Satvanath and Sergenti (2004) use rainfall as an exogenous instrumental variable to estimate the impact of economic factors to civil wars in Africa. It seems that weather shocks are plausible instrument for growth in economies that rely heavily on agriculture. This instrumental variable method allows them to tackle the problem of correlated covariates and find a credible causal relationship between economic conditions and civil war.

Likewise, these endogenous variables cause problems in trade-conflict models and affect to the robustness of empirical tests. Polachek, Seiglie, Xiang (2005) find that FDI plays similar role as trade in reducing conflicts. They tackle the problem by using a simultaneous two-equation model; by investigating both FDI and interdependence in simultaneous equations context they claim to get robust results. Desbordes and Vicard (2005) investigate the relationship between diplomatic

relations and armed conflict. They first confirm empirically that diplomatic relations and FDI are endogenous, but by using a dynamic panel data model they try deal the simultaneity bias. Despite these methodological adjustments, the trade-conflict literature has not been able to establish a truly convincing causal relationship for the liberal peace hypotheses.

Indeed, resolving the determinants of political and economic liberalism and exploring their causal arrows is a very complex task, which will require new innovative approaches, and perhaps synthesis of many theories. Obviously, one significant weakness of traditional trade-conflict models is that they usually ignore the private sector, i.e. the market mechanism, and investigate the trade-conflict relationship merely on the institutional level. In other words the emphasis of the analysis seems to be between the relationship of bilateral politics and bilateral trade and the analysis lacks the potential of stock market information on political events. In the next section I discuss how informational and game theories could help to find new research approaches to the liberal peace hypothesis.

2.3.3 Signalling theories of international relations

The traditional trade-conflict literature seems to neglect the issue of uncertainty and information asymmetry between countries as an important determinant of international conflicts. As I discuss in the context of security dilemma, the system of international relations have also game theoretic and signalling characteristics, i.e. totality of the international system is after all based strongly on communication between governments and political leaders, which include also "cheap talk" and bluffing. In fact, because the anarchic international system is based on mutual agreements and the bargaining process is based on the perception of relative power, the leaders (or governments) have strong incentives to overplay their strength and downplay their weaknesses. Another characteristic is that state leaders have private information about their willingness to fight or to reconcile. In consequence, the information asymmetry and the inability to communicate credibly seem to lead easily to costly contests and conflicts (Fearon, 1994). The personal interests of leaders might also differ from the interests of their citizens.

As a consequence, group of signalling theorists of political science (see e.g. Fearon, 1994; Schulz, 1998; Smith 1999) discuss how the so-called cheap talk signalling mechanisms can enhance the credibility of political statements of leaders. They claim that domestic audience and political opposition groups can make bluffing costly to the leaders, which make their talk more honest. The *domestic audience cost* refers thus to the price that a leader have to pay if he makes statements, promises or threats, which he do not follow-through. In the country where the audience cost is high, the prospect of losing the support of citizens or even the office prevents the leaders to make empty statements. Sartori (2002) adds to the discussion also the aspect of reputation of the leaders: if leaders are dishonest it will backfire them in the future bargaining. The theories of costly signalling are applicable also in different types of events among international relations, i.e. military conflicts, threats and alliances among others can be used as signalling tools in international context (Powell, 1990; Wagner, 2000). I will discuss later more on audience costs in a democracy, but next to the aspect of globalization and signalling between countries.

2.3.4 Globalization and signalling theories

Combining the signalling theories and the economic integration, Gartzke and Li (2003) claim that political leaders have to balance between competitive political goals and economic stability, as autonomous global capital has an ability to react dramatically to political events. As the increasing globalization means that investors can react more independently to changes in risk and return, the priorities between states are revealed by the interaction of nations and financial markets. In other words, due to the global integration of markets, the governments and statesmen face a stronger trade-off between their political and economic incentives. According to the analysis of Gartzke and Li (2003), a closed economy has little choices between bluffing and actual war, whereas state that is interconnected possess a middle path of these two options. In contrast to closed economies, countries that are more integrated are not forced to prove that they are not bluffing, but as capital is free to move globally, the political cheap talk becomes more costly for them. Thus, market mechanism is able to transfer political signals to economic value, which then can be observed by market participants, policymakers and individuals. So as the informational asymmetry between countries, i.e. the security dilemma, can be considered a

relevant cause of violence between countries, a developed market mechanism is able to hinder this. Thus, globalization can be considered as a positive political externality or as a balancer of the international system.

Gartzke and Li (2003) test statistically the effects of global integration on the dependent variable of militarized interstate disputes. Their parameter estimates of globalization variables show evidence that pairs of countries that liberalize their restrictions of capital movement loose political autonomy, but on the other hand these states in turn are less likely to engage in a military conflict. This occurs due to the fact that the loss of political autonomy empowers the private capital market.

2.3.5 Democratic characteristics and domestic audience cost

To backtrack a bit to the signalling theories, Fearon's (1994) findings suggest interestingly how domestic political structures of a country have an effect on its ability to communicate its intentions and make credible commitments to its foreign policy. According to his game theoretic model, discussed already above, leaders of high-audience-cost countries require less military power to communicate their preferences and are better committed to deal with the procedures of foreign policy. His observations provide theoretical analysis why the international relations between democratic countries seem to differ with other regime types.

To my best knowledge, an article from Tomz (2007) provides first direct evidence of the existence of these audience costs in international relations. Running experiments by using a series opinion surveys in US, he shows that audience costs exist evidently throughout the population and especially among politically active people. His evidence suggests that the audience costs arise because the international reputation of the leaders and the country matter for the citizens. The seminal work of audience costs theories from Fearson (1994) and the evidence from Tomz (2007) provide a very interesting insight for the democratic peace thinking. Obviously, the democratic characteristics seem to explain why democratic states have more quality international relations. This provides also perhaps, also a more credible answer to the causality problem of the peace hypothesis.

The discussion of domestic costs and security dilemma offers also an interesting analogy to the classical agency-principal theory (see e.g. Jensen and, Meckling, 1976), which is used commonly in corporate finance. In the political context citizens represent the shareholders and policymakers the agents in an organization called the state. In my perspective Fearon's observations imply also that democratic constructions should provide methods how to mitigate the agency problems of policymakers and citizens but also the information asymmetry in an international context.

Therefore an active political culture, or politically active citizens as Tomz (2007) says, and a functioning civic society with strong civil liberties are means to increase the audience costs of a country, and thus reduce the agency problem perceived by the citizens but also the security dilemma perceived by sovereign states. Furthermore, as Garztke and Li (2003) suggest, integration with other countries reduce the asymmetry of information in international context. In this study I will use national stock markets as a source to investigate whether these country characteristics are reflected in international relations. In the next section I will describe how stock markets generally reflect political events.

2.4 International politics and stock markets

After presenting the background of liberal and realist theories, literature on trade-conflict concepts and informational theories of international relations, I discuss next the evidence on stock market effects of international political events. In the first section I present empirical evidence on stock market effects to wars, after that I describe how markets tend to react to other ultimate shocks and finally I present literature on the market anticipation effects on conflicts.

2.4.1 War and stock markets

War is the most ultimate political interstate phenomenon that can occur between countries and therefore it is not surprising that it has received lot of interest by academics, especially by political scientists and historians. International political conflicts arise frequently around the world: sometimes they stay as small crises but occasionally they develop to full-scale wars, but

despite the political and social significance of the phenomenon, the scientific debate has been unbalanced, at least so far. As described above the effects of political relations have been studied relative widely from trade-conflict perspective, but the discussion of the effects to financial markets has not yet reached the research communities in larger scale. One of the obvious reasons for this might be that the time after World Wars has been rather peaceful and globally integrated financial markets has developed not until the last few decades.

In spite of all, the importance of political conflicts to the financial markets is obvious. In fact a recent working paper by Berkman and Jacobsen (2006) shows empirical evidence that financial consequences of wars are highly negative. They use a database of 440 international political crises during 1918-2002 and find that international political crises reduce world market stock returns approximately by 4% per annum. According to the study an average crisis costs for international investors approximately 280 billion US dollars and yearly average cost is around 1,4 trillion dollars, measured as a drop of market capitalizations.

Berkman and Jacobsen investigate the interstate interactions specifically in the context of complete wars, not as single political events. They analyse the stock market reactions separately in the start, during and at the end of the crises. Naturally the actor countries, i.e. countries involved in the crisis, suffer more than the non-actor countries and the start of a crisis produce the most negative impact on stock market returns. According to their results the stock market value decreases almost 2% among these actor countries when the crisis starts and additionally declines 1% for every month the crisis lasts, in average. In non-actor countries Berkman and Jacobsen do not find significant market reactions during and at the end of the crises. In actor countries the stock markets increase slightly as the crises resolves, but the markets recover still only partially to the pre-crises level. It has to be noted that these results show only the average effects, but it provides interesting evidence of the magnitude of the phenomenon.

Schneider and Troeger (2006b) investigate also financial effects of political developments. They concentrate on three wars and measure the effects in few key markets. They analyse the effects of the first Iraq war, also know as Persian Gulf War, Israel-Palestinian conflict and the Ex-Yugoslavia conflict by measuring the CAC, Dow Jones and FTSE stock index during 1990-2000.

They show contradicting evidence to the Berkman and Jacobsen's study claiming that the global financial markets do not significantly respond to the political development of the three investigated conflicts. They observe that stock markets may react also positively to the conflicts.

With these results Schneider and Troeger try to refine the traditional liberalist notion that the market should immediately react negatively to conflictive events, as war would dangers mutually profitable trade. In consequence they claim that the impact of political events on the capital markets depend on two factors: 1) the intensity of the event and 2) the level of market anticipation. The stock markets might react positively to the conflict news, if they for example expect the new event to promise a faster resolution to the anticipated conflict. Schneider and Troeger rationalize this by developing a rational expectation argument. They argue that the use of force can reduce the uncertainty of investors over the future development of a crisis.

This assumption seems to be grounded to the seminal theory of efficient markets (see e.g. Fama, 1970 and 1991), that stock prices reflect fully all the available information. It is reasonable to assume that markets have incorporated all the future costs of conflicts to the prices of securities and if the cost projections decline the market reaction is naturally positive. In this way market reactions can be used as signals to forecast the moves of diplomatic battle. This provides naturally a plausible explanation also to the positive market reaction of crisis.

Julie Earle and Lauren Foster discuss on the same *market rally* phenomenon in the Financial Times article, *Threat of war weighs heavy on the markets* (February 27, 2003), and point out an illustrative anecdote on the stock market reaction during the Persian Gulf War in 1991: *"In the three days following Iraq's invasion of Kuwait the Dow Jones Industrial Average dropped 6.31 per cent. As the US began gearing up for Operation Desert Storm, stocks started climbing. Within four weeks of the campaign, the Dow gained 17 per cent."* These market reactions raise perhaps interesting questions on investor psychology, but most importantly they reveal how political signals affect the stock prices.

The findings of Berkman and Jacobsen (2006) suggest also that international crises have strong impact on the stock volatility. They show evidence that US stock market volatility increases

significantly as a result of an average conflict even if they are not an actor in the conflict. They speculate that the changes of volatility levels might reflect the market expectations that United States might get involved in the interstate conflict. This supports also the rational expectations framework of Schneider and Troeger discussed above. Berkman and Jacobsen suggest also that the political uncertainty is an explaining factor of the volatility puzzle; see Schwert (1989). Another finding is from Voth (2002), who shows evidence that the "threat variable" is a highly significant predictor of higher stock price volatility. Although Schneider and Troeger's (2006b) findings on stock return effects of political events are ambiguous, their results on volatility are also coherent throughout the data set. Stock markets seem to react to conflictive events with a larger volatility than the cooperative events.

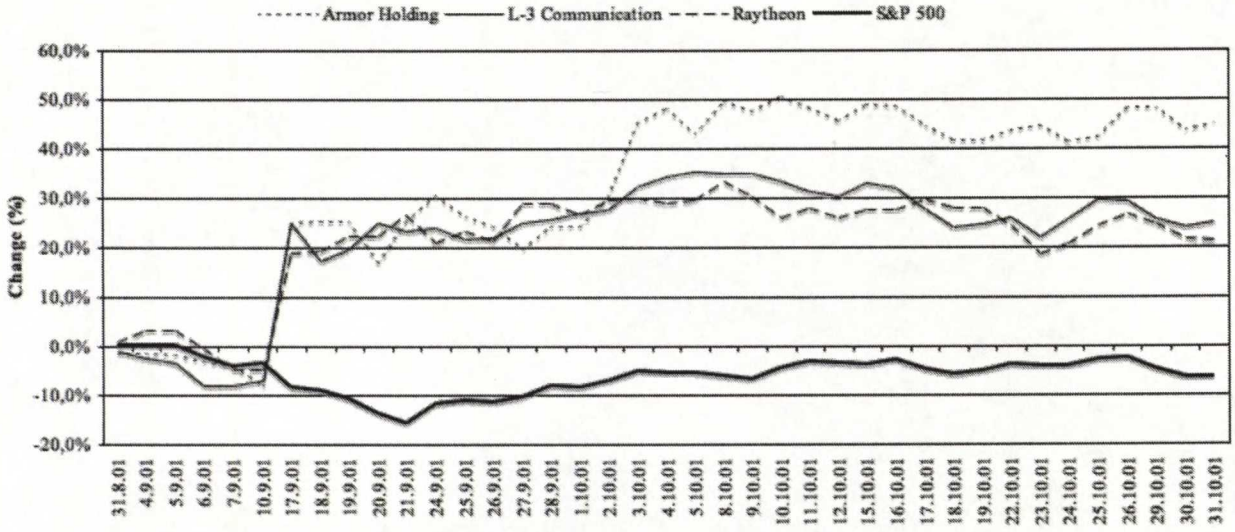
2.4.2 Ultimate shocks and redistributive effects

On September 11, 2001 United States faced an unheard of tragedy as the al-Qaeda terrorists attacked on its soil at New York causing a death for almost three thousand people. The attacks had a significant impact on financial markets - this time extremely negative. S&P 500 dropped more than 12% in two weeks and parallel effects were seen throughout the world as most of the markets declined significantly.

Interestingly though, while the general market indices dropped significantly due to the attacks, some of the indices increased their value substantially. Especially many US defence industry stocks rallied after the attacks: US Defence Index increased by 14% in a trading day. Also many single defence industry stocks increased their value by double-digit rates during a single trading day. After the attacks the daily returns for three US defence companies were following: Armor Holdings +33,15%, Raytheon Company +23,73 %, L-3 Communication 32,26%, see Figure 1).

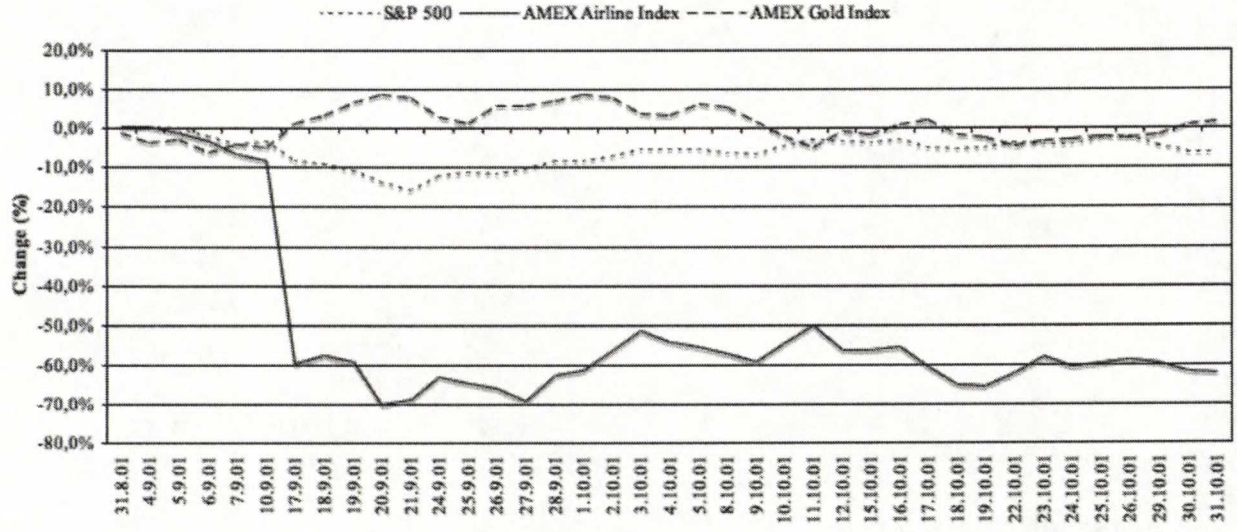
As can be seen on Figure 2 also the AMEX Gold Index increased its value after the attacks, deviating favourably from the market movements, whereas the AMEX Airlines more than halved its value after the attacks.

FIGURE 1: CUMULATIVE RETURNS OF US DEFENCE STOCKS AND S&P500, SEP – OCT 2001



Source: http://finance.yahoo.com

FIGURE 2: CUMULATIVE RETURNS OF S&P 500, AIRLINE AND GOLD INDEXES, SEP – OCT 2001



Source: http://finance.yahoo.com

These terrorist attacks in 2001 were definitely exceptional and are difficult to compare with other events, but these market reactions illustrate well how investors behave during very conflictive events, which are strongly attached to international politics. On the one hand there was a huge overreaction as the general index dropped in few days so much and later normalized, but on the

other hand markets anticipated some changes in defence and security policies as the defence industry stocks skyrocketed. Also, the huge difference of reactions between industry types is interesting in the perspective of individual investor.

Becker and Rubinstein (2004) investigate the economic effects of terrorism in a very fundamental level: they examine the psychological aspects of terrorism and find evidence that fear, generated by terror, can have substantial effects on the economic behaviour of people. Using the US and Israeli data Becker and Rubinstein show that terror generates large effects on consumers, which can for instance be seen in decreased usage of public transfer and air travelling. The increased probability to be harmed affects people's choices and the their utility model.

Chen and Siems (2004) investigate the effects of terrorism on global capital markets by using 14 terrorist and military attacks during 1915-2002. Twelve cases out of fourteen lead to negative abnormal return measured by movements in Dow Jones Industrial Average Index. Likewise, analysing the global effects they find that 31 capital markets out of 33 experience significant negative abnormal returns after the attacks on September 11, 2001. Karolyi and Martell (2006) examine stock price impact of 75 terrorist attacks targeted to publicly traded firms during 1995-2002 and find out a statistically significant negative stock price reaction of -0,83%, corresponding a loss of 401 million USD on average. Berrebi and Klor (2006) investigate the terrorist attacks on American listed Israeli companies during Palestinian-Israeli conflict (1998-2000) by using the effects of similar U.S. firms as a benchmark. Their findings show that non-defence related companies had a significant negative impact of 5%, whereas the defence-related companies experienced a positive impact of 7%. As a change in market capitalization the effect was 65 million USD decrease and 53 million USD increase respectively. Schneider and Troeger (2006a) contend also that certain sector can profit from armed conflict directly or indirectly. They show empirical evidence that occasionally defence and oil stocks increase in value whereas aviation and tourism stocks suffer from the escalation of hostilities. The distributional effects are similar to the industry level reactions in September 2001.

2.4.3 The anticipation of war – the Iraq case

The recent US –led campaign in Iraq (2003-) raises interest among scholar to investigate the consequences of war on stock markets. Rigobon and Sack (2005) test the effects of war risk on US financial markets, finding evidence that the risk associated with Iraq war has significant effects among many US financial variables during three months period before the coalition troops' arrival to Baghdad. They estimate a war risk factor for the Iraq by setting a set of days when the outlook for war particularly prominent. Their results suggest that an increase of this "war risk" causes a significant decline in equity prices, Treasury yields and in the price of dollar, among others. The increased risk of war cause also a significant increase in oil prices, whereas the impact for gold prices is not statistically significant. The war risk accounts also a considerable amount of the variances of these variables: ten weeks before the war, the risk factor explained 13% to 63% of the variance of S&P 500 and oil price among others. These negative market reactions found by Rigobon and Sack (2005) are naturally in line with the anecdotal evidence presented above. For further cost calculations of Iraq war see also Nordhaus (2002) and Davis, Murphy and Topel. (2003). Nevertheless, the war risk concept brings up particularly the interesting behavioural finance aspect to this topic. Indeed, as Rigobon and Sack show the markets do not wait when the actual conflict starts, but they really seem to anticipate the war months ahead. This highlights the interplay of international politics and financial markets. Most importantly, this supports also the informational theories of international relations, which I discuss above.

Saddam securities

Another striking example of the war anticipation effect is the market for "Saddam security" that was traded before the arrest of the former Iraqi dictator. The security was a derivative-like contract traded on an online betting exchange paying off only if Saddam Hussein gets replaced before certain date. Leigh, Wolfers and Zitzewitz (2003) show empirical evidence that this Saddam security provided as a plausible estimate for the probability of Iraq war. Also the spot oil price seemed to move closely with this security indicating that the war would raise the oil prices around $10 per barrel. On the other hand the future prices implied that the effects would be only temporary as the markets expected the prices to return to pre-war levels in a year and half. According to Leigh et al. this suggest that market anticipated the large negative effects to fade

away quickly. Additionally Leig et al. find significant effects in equity markets, as they expected the war decrease the market value of U.S. equities by 15% especially concentrating on consumer sectors, such as airlines and information technology. On the other hand the possibility of war seem to benefit gold and energy sectors. However, investigating country specific reactions they show that most extreme effects are on the stock markets in Europe and especially in Turkey and Israel. Amihud and Wohl (2004) used also the Saddam security to investigate how stock market reacted to political news. They extend the evidence of Leigh et al. from the pre-war period to the period of ongoing war. In line with Leigh et al, they interpret that before the war markets anticipated the war to be costly, as the rise in the probability of Saddam to fall increased the stock returns in US, strengthened the dollar and lowered the price of oil.

3 Hypotheses

The hypotheses of the study are divided in two parts: firstly section 3.1 presents the hypotheses on market and industry level and secondly 3.2 presents the hypotheses on the aggregate level of international relations. Another important difference of the sections is also the type of events that are investigated. Section 3.1 presents hypotheses on market reactions of the most conflictive and the most cooperative political events for each country, whereas section 3.2 presents hypotheses taking account the whole spectrum of all political events. I form these hypotheses based on the literature and theories of international relations presented above. I discuss each hypothesis separately below.

3.1 Hypotheses on market reaction on country and sector level

3.1.1 Country level hypotheses

As presented in the literature review many studies show evidence that political events and economic fundaments are correlated. Proponents of peace-through-trade claim that positive bilateral relations lead to higher trade gains. Based on the analysis in trade-conflict literature I assume that bilateral political events have an effect on the stock market of the country where the news signal is directed. I test the hypotheses in two parts as follows:

Hypothesis 1A: *Conflictive bilateral political actions targeted towards country X have a negative impact on country X's stock markets.*

Hypothesis 1B: *Cooperative bilateral political actions targeted towards country X have a positive impact on country X's stock markets.*

Both of these hypotheses are tested separately for a cross-section of 32 different stock markets around the world. Specifically, by using an event study methodology, I test whether bilateral

political events produce statistically significant abnormal returns on national stock markets. These are tested separately for each country by selecting the most conflictive and the most cooperative bilateral political events, which are directed to the country in question. The events are gathered from a political event database (King and Lowe, 2003) and the significant political events are sorted and selected according to a conflictive-cooperative scaling (Goldstein, 1992).

According to the theory of efficient capital markets (Fama, 1970 and 1991), markets are called efficient if they fully reflect all available information. In other words if highly cooperative or conflictive international political news have relevant information to the market expectations, one should identify a change in stock prices. Based on this theory increasing political risk from outside might have a negative impact on stock prices. And other way around, if bilateral events are positive the markets should reward them with price increase.

3.1.2 Sector level hypotheses

Empirical and anecdotal evidence on conflicts (see e.g. Schneider and Troeger, 2006a) suggests also strong distributional effects among industries. Consequently, in stock markets certain industries tend to win and others tend to loose as a result of conflict escalation. By using conflictive and cooperative bilateral events, I test whether there are distributional effects and some consistency among different industry types. The hypothesis is again divided in two parts to identify the effects of both positive and negative events. The hypotheses for sector level analysis is as follows:

Hypothesis 2A: *Cooperative bilateral political actions targeted towards country X have a positive stock market reaction on sector X in country X.*

Hypothesis 2B: *Conflictive bilateral political actions targeted towards country X have a negative stock market reaction on sector X in country X.*

These hypotheses are tested separately on 25 different industries in multiple countries during 1990-2004. I use likewise an event study methodology to investigate the significance of abnormal

returns around the political events. Political events are selected by using the Goldstein's severity scaling as in hypotheses 1A and 1B. Similarly to the country level hypotheses I expect the conflictive bilateral political events to produce negative and cooperative events positive stock markets, respectively. However, as the presented evidence suggests, different sectors seem react in very different ways to political events.

3.1.3 The sector effects of terrorist attacks

As the evidence on terrorist attacks shows, unexpected violent events can have significant impact on stock markets and lead to huge distributional effects among industries. Similar to hypothesis 2, I investigate whether fatal terrorist incidents have consistently significant impact on certain sectors in different countries.

Hypothesis 3: *International terrorist attacks have a negative/positive stock market effect on sector X in country X.*

To test this hypothesis I conduct an event study of 27 terrorist attacks directed to western economies. Similarly to hypotheses 2A and 2B, I test the statistical significance of abnormal returns separately for number of industry indexes in different countries. All the terrorist incidents are conducted during 1990-2004 by known terrorist organizations and the sample is selected based on the fatality rate of the event. The more detailed list and sample selection process is presented in the data description section.

In contrast to hypothesis 2, hypothesis 3 is modelled for events that are not directly initiated by any country. Terrorist attacks are generally more hostile and can be considered more unexpected than bilateral events that often develop in a long continuum of diplomatic processes. As terrorist incidents events are also less expected to include political signalling, hypothesis 3 provide a method to identify some potential differences between those events, which have clear political source or agenda and with those that have a murky terrorist organization behind. Terrorist attacks provide an interesting opportunity to investigate immediate market reactions to international conflictive events, which are hardly anticipated by the markets. Similar to hypothesis 2, I use the

hypothesis to extend the analysis of how different sectors might react to violence. I test the effects of extremely violent terrorist attacks in different industries in multiple sets of countries. The terrorist attacks may increase the investors' expectations of war, or can have an influence on confidence levels of investors, thus the changed expectation should be identified as significant abnormal returns around the event dates, and the effects could be expected to be consistent among industries.

3.2 Hypotheses on event severity and country characteristics

In contrast to previous hypotheses, next hypotheses are formulated to test markets reaction to bilateral political events in aggregate level, across different countries, and by taking account also less significant political events. Despite the causality problem of the liberal peace hypothesis, trade ties and political events are evidently correlated. There is also strong evidence that stock markets do react significantly on certain political events, especially when they are highly conflictive, i.e. wars for instance. By valuing a large sample of bilateral political events with specific political severity weights, I am able to compare the events to the corresponding reaction in stock markets. Based on the analysis that stock markets reflect at least to some extent the political signals, I assume that the intensity of political events is positively correlated with the stock market reaction of the event. Consequently, I formulate the fourth hypothesis as follows:

Hypothesis 4: *The intensity of political events has an effect on the magnitude of stock market reactions in target countries.*

I test this hypothesis by regressing country specific abnormal returns on a variable measuring the political event severity. I calculate the abnormal returns from the respective market indexes of 29 countries. Totally sample consists of 44 832 political events that have taken place during 1990-2004.

Hypothesis on political characteristics

In contrast to the previous hypotheses, derived on the traditional assumptions liberal peace hypothesis, next hypotheses are based on the informational theories. I approach the liberal hypothesis by examining specifically how the political characteristics of countries affect to the stock market reactions of bilateral politics. Based on the game theoretic arguments, presented above, I assume that important cause of conflicts is derived from information asymmetry between countries. By using the information of stock markets I analyse which country characteristics facilitate the security dilemma.

In contrast to the traditional democratic/liberal peace hypothesis I do not expect that democracy necessarily lead to peace, but that democratic characteristics of countries may have an influence how policymakers behave in international context. Based on the theoretical model by Fearon (1994) and empirical evidence by Tomz (2007) that democratic characteristics produce higher audience costs to leaders and thus mitigate the problems of asymmetric information, I expect that democratic features of countries have stabilizing effects to markets. This leads to my fifth hypothesis.

Hypothesis 5: *Stock markets are less sensitive to bilateral political events in countries that have stronger democratic features.*

My sixth hypothesis is a variant of the previous one in the sense that it rests also upon informational theories and has similar assumptions. Additionally, Gartzke and Li (2003) show that globalization and capital markets mitigate the information asymmetry through increasing audience costs, and thus leads to decreasing of security dilemma between countries. Based on this evidence, I expect that features of globalization have stabilizing effects on stock markets. Thus, my sixth hypothesis is as follows:

Hypothesis 6: *Stock markets are less sensitive to bilateral political events in countries that have higher globalization level.*

I will test both hypothesis 5 and hypothesis 6 by building an OLS regression model, which explains abnormal returns of political events in 29 different countries. In order to investigate if democracy and globalization have an effect on the stock market sensitivity to political events, I create a multiplicative interaction terms consisting of the political event intensity value and the country characteristic terms. Using these cross variables I am able to analyse whether the country characteristics have an impact on stock market reaction of political events. To analyze the effect of political characteristics more in detail, I test also constituents of globalization and democracy separately.

4 Data description

The event analysis has been used in international relations research for long time, but unlike in financial research the availability of extensive quantitative data sets has not been as self-evident. The empirical research of international relations has based mostly on quarterly or monthly observations of the international system and the generation of data has based on human coding of printed news sources. This fact has limited the quantitative analysis of international relations (King and Lowe, 2003). However, thanks to the technical development during recent years, a large change has occurred in the event data community of political relations. In this section I describe the unique political event data set that I employ in this study. Furthermore I describe the financial data, the data of political characteristics and the sample of unexpected terrorist incidents that I use in the study.

4.1 Event data of international relations

The event data I employ in this study is gathered from the news data set, which is automatically coded by a VRA (The Virtual Research Associates, Inc) software system. The data set forms an extensive array of political events during 1990-2004. The data is categorized into 200 different types of actions, which are summarized as "Actor A does something to Actor B". The events take place between 450 different actors, such as countries and other actors within the countries. The events are extracted and coded from Reuters' news reports and totally the set consists of 10 million dyadic (i.e. bilateral) events. The *10 million international dyadic events* data set is available at the website of Gary King, see the source link in the References sections.

The data is published as a supplement of King and Lowe (2003) article, which evaluated the capabilities of an automated information extraction tool to code international conflict data. King and Lowe find that the software system is able to perform equally to the human coders (in this case trained Harvard graduates) as coding individual news events to database. However, for

larger amounts of events the machine dominates human coders, as it is able to extract massive amount of news events inexpensively and extremely quickly. Unlike humans the computers do not get tired, bored or distracted. Although the King and Lowe article was published in 2003, the data set has been afterwards updated to cover news events until 2004.

Because of its broad coverage, this data provides very suitable source to quantify international relations. Thanks to its advanced IDEA classification, which I discuss more detailed below, the sorting and further processing of the data is rather flexible. Hence it suits very well for various academic purposes and although it is a fairly new data set, the data set has already been used in some scientific articles in the field of political science.

Despite its possibilities the data has been used very little in studies of financial markets. Nonetheless the data set provides many research opportunities for multidisciplinary studies, also for academics in finance. As the events are coded to the exact day they become known, we can test whether these political events include any new valuable information in stock markets. A specific weighting scale of political events provides an opportunity to quantify international relations in a concrete way. Next I will present the classification system of the news data set and after that I present the political event weighting scale that I will use in this study.

4.1.1 Classification of event data

Not only the problem of generating large amounts of quality data for international relations studies has caused troubles for event analysis, but also the limitations of traditional data frameworks. The early frameworks have suffered from their inflexibility and scalability constraints. The latest IDEA framework (Integrated Data for Events analysis) provides a comprehensive event typology and second-generation protocol for automated events data development. Bond et al. (2003) present the parameters and a comprehensive analysis of this flexible framework, which is also used by the VRA Reader and King and Lowe (2003). The framework is available on the VRA website, see web link in the Reference section. The table below shows an example of the IDEA framework classification, which I employ in my event selection process. The dyadic data is classified according to the event date, source and target

sector, source and target level. The event type (event form) itself is listed as well as the locations, name of the source and the target country. Source sectors represent the horizontal cut of the actors, whereas the source level describes the vertical cut of the event cases.

TABLE 1: VRA DOCUMENTATION AND IDEA FRAMEWORK OF THE POLITICAL EVENT DATA

This table shows an example of 10 million dyadic events (King and Love, 2003) are documented and organized according to the IDEA framework and VRA software system. ID denotes a unique identification number assigned to each news report. XID is an additional identification marker that is used for data retrieval purposes. SID identifies the sentence number associated with the news report. EID identifies the number of the event that is associated with a single sentence. PLACE conveys the news desk location where the news report is originated. EVENTFORM denotes the four letter IDEA event acronym associated with the event. EVENT DATE corresponds the date when the news becomes public. SRCNAME and TGTNAME denote the countries associated with the source/target, or initiating/recipient actor/s, as coded in the event. SRCSECTOR and TGTSECTOR denotes sectors associated with the source/target as coded in the event. SRCLEVEL and TGTLEVEL denote the level of organization that corresponds with the source/target as coded in the event.

ID	XID	SID	EID	PLACE	EVENT DATE	EVENT FORM	SRCNAME	SRCSECTOR	SRCLEVEL	TGTNAME	TGTSECTOR	TGTLEVEL
XX9001030774	0	1	1	USA	3.1.1990	<SAID>	USA	<BUSI>	<ORGA>	FRG	<GAGE>	<ORGA>
XX9001030883	0	1	1	USA	3.1.1990	<SAID>	USA	<BUSI>	<ORGA>	CAN	<GAGE>	<CTRY>
XX9001030958	1	1	2	USA	3.1.1990	<SAID>	USA	<BUSI>	<ORGA>	CAN	<BUSI>	<ORGA>
XX9001031622	1	2	1	UK_	3.1.1990	<SAID>	UK_	<BUSI>	<ORGA>	USA	<GAGE>	<CITY>
XX9001042410	0	1	1	USA	4.1.1990	<COLL>	USA	<GAGE>	<CTRY>	UK_	<GAGE>	<CTRY>
XX9001050114	0	1	1	USA	4.1.1990	<COLL>	USA	<GAGE>	<CTRY>	UK_	<GAGE>	<CTRY>
XX9001040857	0	1	1	FRG	4.1.1990	<AGAC>	FRG	<BUSI>	<ORGA>	USA	<BUSI>	<ORGA>
XX9001040857	2	1	2	JPN	4.1.1990	<AGAC>	JPN	<BUSI>	<ORGA>	USA	<BUSI>	<ORGA>
XX9001040702	0	1	1	FRN	4.1.1990	<SAID>	FRN	<NEXE>	<CITY>	JPN	<BUSI>	<ORGA>
XX9001040702	2	1	2	FRN	4.1.1990	<SAID>	FRN	<NEXE>	<CITY>	FRG	<GAGE>	<ORGA>
XX9001040952	0	1	1	USA	4.1.1990	<SAID>	USA	<NEXE>	<CITY>	FRN	<GAGE>	<CTRY>
XX9001040977	1	1	2	USA	4.1.1990	<SAID>	USA	<BUSI>	<ORGA>	FRN	<GAGE>	<CITY>
XX9001040977	3	2	1	USA	4.1.1990	<SAID>	USA	<BUSI>	<ORGA>	FRN	<GAGE>	<CITY>
XX9001041273	0	1	1	FRG	4.1.1990	<SAID>	FRG	<BUSI>	<ORGA>	USA	<GAGE>	<CTRY>
XX9001041828	0	1	1	FRN	4.1.1990	<SAID>	FRN	<GAGE>	<CTRY>	USA	<GAGE>	<ORGA>
XX9001047033	0	2	1	ITA	4.1.1990	<SAID>	ITA	<GAGE>	<CAPI>	FRN	<MASS>	<THNG>
XA9001040685	0	1	1	USA	4.1.1990	<FCOM>	USA	<BUSI>	<ORGA>	JPN	<GAGE>	<CTRY>
XX9001042326	0	1	1	USA	4.1.1990	<REJC>	USA	<GAGE>	<CTRY>	JPN	<INTA>	<CTRY>
XX9001042402	0	1	1	USA	4.1.1990	<RPRO>	USA	<GAGE>	<CTRY>	JPN	<INTA>	<CTRY>
XX9001050040	1	1	2	USA	4.1.1990	<RPRO>	USA	<GAGE>	<CAPI>	JPN	<INTA>	<CTRY>
XA9001050946	0	1	1	USA	5.1.1990	<PRAI>	USA	<NEXE>	<INDI>	JPN	<SACT>	<THNG>
...	...	...	...	...	...	...	...	...	...	...	...	...

4.1.2 A conflict-cooperation scale for events data

To identify the severity of each political event I match the IDEA codes with corresponding political intensity values, which describe the event in the cooperative-conflictive scale. I use Goldstein's (1992) classification for political events, which is designed to fit the WEIS/IDEA framework. See the Table 2 below for IDEA codes and their corresponding Goldstein weights.

TABLE 2: GOLDSTEIN CONFLICTIVE-COOPERATIVE SCALE FOR INTERNATIONAL POLITICAL EVENTS

This table shows the Goldstein political event classification (1992) ranging from the most conflictive bilateral events to the most cooperative. In this table -8,3 denotes the most cooperative event and 10 is the most conflictive, but for this study I change the signs other way around: I denote conflictive events with a negative sign (-) and cooperative events with a positive sign (+). I use this table to match the *10 million dyadic events* with the Goldstein values by using the corresponding IDEA acronyms.

Scale	IDEA	Definition	Scale	IDEA	Definition
-8,3	72	extend military aid	2,4	13	complain
-7,6	74	rally support	2,8	12	accuse
-7,6	73	extend humanitarian aid	3	161	warn
-7,4	71	extend economic aid	3	16	warn
-6,5	81	make substantial agreement	3,4	122	denounce or denigrate
-5,4	64	improve relations	3,8	194	halt negotiations
-5,2	523	promise humanitarian support	4	1134	break law
-5,2	522	promise military support	4	1132	disclose information
-5,2	521	promise economic support	4	1131	political flight
-5,2	52	promise material support	4	113	defy norms
-4,8	83	collaborate	4	1123	veto
-4,8	8	agree	4	1122	censor media
-4,7	5	promise	4	1121	impose curfew
-4,5	51	promise policy or non-material support	4	112	refuse to allow
-3,5	432	forgive	4	111	reject proposal
-3,5	4	endorse or approve	4	11	reject
-3,4	93	ask for material aid	4,4	2122	political arrest and detention
-3,4	92	solicit support	4,4	2121	criminal arrest and detention
-3,4	43	empathize	4,4	212	arrest and detention
-3,4	41	praise	4,4	171	non-specific threats
-3	82	agree or accept	4,5	1963	administrative sanctions
-2,9	65	ease sanctions	4,5	1961	strike
-2,8	54	assure	4,5	196	strikes and boycotts
-2,8	33	host meeting	4,5	19	sanction
-2,5	62	extend invitation	4,9	151	demand
-2,2	655	relax curfew	4,9	15	demand
-2,2	654	demobilize armed forces	5	201	expel
-2,2	653	relax administrative sanction	5	20	expel
-2,2	652	relax censorship	5,2	1813	protest defacement and art
-2,2	651	observe truce	5,2	1812	protest procession
-2,2	632	evacuate victims	5,2	1811	protest obstruction
-2,2	63	provide shelter	5,2	181	protest demonstrations
-2,2	6	grant	5,6	193	reduce or stop aid
-2,2	431	apologize	5,8	172	sanctions threat
-2	13	acknowledge responsibility	6,4	175	non-military force threats
-1,9	66	release or return	6,4	17	threaten
-1,9	32	travel to meet	6,8	2112	guerrilla seizure
-1,6	933	ask for humanitarian aid	6,8	2111	police seizure
-1,6	932	ask for military aid	6,8	21	seize
-1,6	931	ask for economic aid	6,9	183	control crowds
-1,6	9	request	6,9	1814	protest altruism
-1,5	1011	offer peace proposal	6,9	18	protest
-1,5	101	peace proposal	6,9	174	give ultimatum
-1,5	3	consult	7	2231	military clash
-1,2	102	call for action	7	195	break relations
-1,1	1	yield	7	1734	threaten military war
-1	31	discussions	7	1733	threaten military occupation
-0,8	10	propose	7	1732	threaten military blockade
-0,6	12	yield position	7	1731	threaten military attack
-0,6	11	yield to order	7	173	military force threat
-0,1	91	ask for information	7,6	1827	military border violation
-0,1	24	optimistic comment	7,6	1826	military border fortification
0	99	sports contest	7,6	1825	military mobilization
0	98	A and E performance	7,6	1824	military troops display
0	97	accident	7,6	1823	military naval display
0	96	natural disaster	7,6	1821	military alert
0	95	human death	7,6	182	military demonstration
0	94	human illness	8,3	224	riot or political turmoil
0	72	animal death	8,7	221	bombings
0	27	economic status	9,2	2236	military seizure
0	26	adjust	9,2	2123	abduction
0	25	vote	9,2	211	seize possession
0	24	adjudicate	9,6	2228	assassination
0	2321	government default on payments	9,6	2227	guerrilla assault
0	2312	private transactions	9,6	2226	paramilitary assault
0	2311	government transactions	9,6	2225	torture
0	231	transactions	9,6	2224	sexual assault
0	23	economic activity	9,6	2223	bodily punishment
0,1	94	ask for protection	9,6	2222	shooting
0,1	22	pessimistic comment	9,6	2221	beatings
0,1	21	decline comment	9,6	222	physical assault
0,1	2	comment	9,6	22	force
0,9	141	deny responsibility	10	2237	biological weapons use
1	14	deny	10	2235	assault
1,1	631	grant asylum	10	2234	military occupation
2,2	192	reduce routine activity	10	2233	coups and mutinies
2,2	121	criticize or blame	10	2232	military raid
2,4	132	formally complain	10	223	military engagements
2,4	131	informally complain			

Source: King and Lowe (2003), pp 622-623

4.2 Terrorist attacks

In order to analyze stock market reactions of unexpected shocks, I construct a sample of 27 terrorist attacks, which are targeted to western countries and are made by terrorist organizations listed as 'US enemies', see US Department of State, Patterns of Global Terrorism.

The event data is collected from MIPT Terrorism Knowledge Base by choosing terrorist attacks around the world during the 1990-2004. The data is limited to include only events that have fatality range at least over 6 persons. The terrorist incident sample is listed below. In addition to the event dates, also the terrorist organization, country location of the attack, the number range of people died and the target of the attack is listed.

TABLE 3: LIST OF TERRORIST INCIDENTS, TARGETS, FATALITY RANGES AND ORGANIZATIONS

#	Event Date	Attacked Target	Fatality Range	Location	Organization
1	15.10.2004	Business target	6 - 15 people	Iraq	Tawhid and Jihad
2	29.8.2004	Other target	6 - 15 people	Afganistan	Taliban
3	11.3.2004	Transportation target	circa 200 people	Spain	Abu Hafs al-Masri Brigade
4	1.1.2004	Private Citizens & Property target	6 - 15 people	Iraq	Unknown Group
5	5.8.2003	Business target	6 - 15 people	Indonesia	al-Qaeda
6	24.6.2003	Police target	6 - 15 people	Iraq	Tawhid and Jihad
7	31.7.2002	Educational Institutions target	6 - 15 people	Israel	Hamas
8	14.6.2002	Diplomatic target	6 - 15 people	Pakistan	al-Qanoon
9	8.5.2002	Business target	6 - 15 people	Pakistan	Unknown Group
10	21.3.2002	Private Citizens & Property target	6 - 15 people	Peru	Shining Path
11	28.10.2001	Religious Figures/Institutions target	16 - 30 people	Pakistan	Lashkar-I-Omar
12	11.9.2001	Business & Government target	circa 3000 people	United States	al-Qaeda
13	9.8.2001	Business target	16 - 30 people	Israel	Hamas
14	1.3.1999	Tourists target	6 - 15 people	Uganda	Unknown Group
15	28.12.1998	Other target	6 - 15 people	Yemen	Aden Abyan Islamic Army (AAIA)
16	7.8.1998	Diplomatic target	6 - 15 people	Tanzania	al-Qaeda
17	4.9.1997	Private Citizens & Property target	6 - 15 people	Israel	Hamas
18	30.7.1997	Private Citizens & Property target	6 - 15 people	Israel	Hamas
19	30.3.1997	Private Citizens & Property target	16 - 30 people	Cambodia	Unknown Group
20	25.6.1996	Military target	6 - 15 people	Saudi Arabia	Hezbollah and Islamic Movement for Change
21	13.11.1995	Military target	16 - 30 people	Saudi Arabia	Hezbollah and al-Qaeda
22	21.8.1995	Transportation target	6 - 15 people	Israel	Hamas
23	25.12.1994	Transportation target	6 - 15 people	Israel	Hamas
24	19.7.1994	Airports & Airlines target	16 - 30 people	Panama	Ansar Allah
25	26.2.1993	Business target / WTC Bombing	6 - 15 people	United States	Liberation Army Fifth Battalion
26	31.10.1992	Religious Figures/Institutions target	6 - 15 people	Liberia	National Patriotic Front of Liberia (NPFL)
27	16.3.1992	Business target	6 - 15 people	India	Other Group

4.3 Financial data

The financial data I use in this study consists of national market and sector index data from 32 countries. The time period for financial data is the same as for political events, i.e. from January 1990 to December 2004. However, for normal return estimation I use data already prior to 1990. The financial data include stock market data from all continents and it is a geographical and characteristic cross section of different types of countries.

The industrial index data is chosen only for six countries, which represent different continents and have different characteristics with each other. I gather these industrial indexes namely in UK, Japan, Finland, Canada, Korea and US markets. The industrial sectors are likewise a cross section of different type of sectors ranging from raw material sectors to manufacturing and service sectors. The data is gathered by using Thomson Datastream. The market and sector indexes are presented on the following table.

TABLE 4: FINANCIAL MARKET DATA FROM 32 MARKETS AND 25 SECTORS IN VARIOUS COUNTRIES

32 Market Indices (Datastream)		25 Sector Indices (Datastream)*	
Australia	Mexico	Auto	Information Technology
Belgium	Netherlands	Hotel	Engineering & Machinery
Canada	New Zealand	Bank	Consumer Finance
Chile	Norway	Air	Non Financial
Denmark	Philippine	Media	Software
Finland	Portugal	Semiconductors	Farming
France	Singapore	Oil	Retail
Germany	South Africa	Health	Chemicals
Greece	Spain	Financial	Forest
India	Sweden	Utilities	
Ireland	Switzerland	Transport	
Israel	Taiwan	Resources	
Italy	Thailand	Electronics	
Japan	Turkey	Investment Banking	
Korea	Uknited Kingdom	Real Estate	
Malaysia	United States	Insurance	

* only for Canada, Finland, Japan, Korea, United Kingdom and United States

4.4 Data on political characteristics of countries

Table 5 presents the country ranking data that I use for analysing county characteristics. The table shows the total ranking index value of democracy and globalization in each country. The democracy index is calculated and created by the Economists Intelligence Unit (2007). The index divides countries into four categories: full democracies, flawed democracies, hybrid regimes and authoritarian regimes. The total democracy index is an average of five different categories: i.e. 1) electoral process and pluralism, 2) functioning of government, 3) political participation, 4) political culture and 5) civil liberties. These five categories are based on the ratings of 60 different indicators that are measured using both expert's assessments and public opinion surveys. Especially measuring the level of political participation and political culture the Economist relies on the opinion surveys.

TABLE 5: DEMOCRACY INDEX, GLOBALIZATION INDEX AND THEIR CONSTITUENTS

Country	**Democracy Index:**	1) Electoral process and pluralism	2) Functioning of government	3) Political participation	4) Political culture	5) Civil liberties	**Globalization Index:**	1) Economic Globalization	2) Social Globalization	3) Political Globalization
Australia	90,90	100,00	89,30	77,80	87,50	100,00	80,91	77,89	82,78	82,35
Belgium	81,50	95,80	82,10	66,70	68,80	94,10	91,96	92,33	90,66	93,37
Canada	90,70	91,70	96,40	77,80	87,50	100,00	87,49	83,09	86,64	94,85
Chile	78,90	95,80	89,30	50,00	62,50	97,10	69,91	83,97	53,25	74,91
Denmark	95,20	100,00	96,40	88,90	93,80	97,10	84,27	77,04	88,92	87,47
Finland	92,50	100,00	100,00	77,80	87,50	97,10	84,84	84,62	83,91	86,51
France	80,70	95,80	75,00	66,70	75,00	91,20	87,71	83,95	84,22	98,06
Germany	88,20	95,80	85,70	77,80	87,50	94,10	82,48	72,58	83,56	94,61
India	76,80	95,80	82,10	55,60	56,30	94,10	49,70	36,17	34,88	90,24
Ireland	90,10	95,80	89,30	77,80	87,50	100,00	83,09	94,88	77,65	74,76
Italy	77,30	91,70	64,30	61,10	81,30	88,20	80,61	79,17	73,16	93,55
Japan	81,50	91,70	78,60	55,60	87,50	94,10	64,22	58,36	54,01	87,37
Korea	78,80	95,80	71,40	72,20	75,00	79,40	62,45	63,78	47,81	82,12
Malaysia	59,80	60,80	57,10	44,40	75,00	61,80	75,81	74,70	70,36	85,39
Mexico	66,70	87,50	60,70	50,00	50,00	85,30	55,49	58,95	50,97	57,33
Netherlands	96,60	95,80	92,90	94,40	100,00	100,00	89,15	90,18	89,98	86,51
New Zealand	90,10	100,00	85,70	83,30	81,30	100,00	73,46	81,21	73,13	63,19
Norway	95,50	100,00	96,40	100,00	81,30	100,00	77,75	70,85	84,64	77,19
Philippine	61,10	87,50	32,90	55,60	50,00	79,40	57,12	60,73	42,67	73,36
Singapore	58,90	43,30	75,00	27,80	75,00	73,50	82,14	95,14	92,49	48,92
South Africa	79,10	87,50	78,60	72,20	68,80	88,20	62,45	63,78	47,81	82,12
Spain	83,40	95,80	78,60	61,10	87,50	94,10	82,52	82,36	77,59	89,99
Sweden	98,80	100,00	100,00	100,00	93,80	100,00	89,89	88,52	88,52	93,82
Switzerland	90,20	95,80	92,90	77,80	87,50	97,10	85,53	82,02	88,43	86,13
Taiwan	78,20	95,80	75,00	66,70	56,30	97,10	85,53	82,02	88,43	86,13
Thailand	56,70	48,30	64,30	50,00	56,30	64,70	56,87	58,48	45,92	70,75
Turkey	57,00	79,20	67,90	44,40	37,50	55,90	63,45	63,64	47,46	86,72
United Kingdom	80,80	95,80	85,70	50,00	81,30	91,20	89,29	86,12	87,88	95,76
United States	82,20	87,50	78,60	72,20	87,50	85,30	80,83	73,00	77,82	96,11

The globalization index in Table 5 is sourced from the KOF index of globalization, which is designed by Dreher (2006). The KOF globalization index covers three dimensions of

globalization, which are defined as economic globalization, political globalization and social globalization.

The KOF Index of Globalization defines *"globalization to be the process networks of connections among actors at multi-continental distances, mediated through a variety of flows including people, information and ideas, capital and goods. Globalization is conceptualized as a process that erodes national boundaries, integrates national economies, cultures, technologies and governance and produces complex relations of mutual interdependence."*

The three dimensions of the index are defined as: *1) economic globalization, characterized as long distance flows of goods, capital and services as well as information and perceptions that accompany market exchanges; 2) political globalization, characterized by a diffusion of government policies; and 3) social globalization, expressed as the spread of ideas, information, images and people.* (Dreher, 2006) The rankings used for measuring the globalization index are based on 2004 data. For more detailed analysis of the parameters of globalization index, see Appendix A.

5 Methodology

This section presents the methodological procedures of my study. I discuss first the event study methodology, which consists of selecting events (5.1.1) and then testing the cumulative abnormal returns around the events (5.1.2). Secondly I present the statistical OLS regression model (5.2.1) and after that I elaborate the variables used in the model (5.2.2).

5.1 Event study methodology

5.1.1 Selection of bilateral political events

Because the King and Lowe's massive data set includes over ten million dyadic events, the data set needs also a massive amount of classification and sorting. I exclude number of irrelevant cases from the data in order to identify the most relevant cases of the interstate relations. Next I describe the event selection process.

First I match the international relations data with the Goldstein's conflictive-cooperation scaling. Then I exclude all the cases which Goldstein value is zero. These cases include news relating to sport contests etc. Next, using the IDEA classification described above, I include only the cases where the source levels and the target levels are countries, cities, capitals or official organizations (<CTRY>, <CITY>, <CAPI>, <ORGA>). The political news originated from these four levels represent more or less 'official statements' from the source country. The same exclusion is made for the target countries. This way I am able to exclude all the politically insignificant events and outliers: cases where the actors are individual or otherwise unknown. It is important that all the cases represent interstate political dealings in a high level.

For the separate country and sector level analysis I choose only the most conflictive and cooperative cases based on the event severity. This classification is done according to Goldstein scaling. From the negative news I choose events which severity value is at least from -3 to -10 and from the positive news are chosen if they are higher than +3, Goldstein of +8,3 being the

most cooperative. I construct a positive and negative event samples for every country separately to test whether political events matter. In sample selection process I also take the event clustering into account. In the aggregate level analysis I use the whole spectrum of event types ranging from -10 to +8,3.

5.1.2 Calculating and testing cumulative abnormal returns

I calculate the abnormal returns by the process described in numerous event study related articles (see e.g. MacKinlay 1997; Brown and Warner 1985). To measure the impact of an individual event I calculate the abnormal returns (1) for each day around each event. I subtract the estimated normal returns (3) from the observed returns of an index (2).

$$AR_{i,t} = R_{i,t} - \overline{R}_{m,t}, \qquad (1)$$

where i is the observed index and t is the day of the observation. $R_{i,t}$ is the observed daily return over the risk-free rate, calculated as continuously compounded logarithmic returns as follows:

$$R_{i,t} = \ln(\frac{CloseP_{i,t}}{CloseP_{i,t-1}}) - R_f \qquad (2)$$

To calculate the normal performance (3) of the national index (or alternatively sector index) I need to estimate the market return model parameters: $\alpha_{CountryX}$ and $\beta_{CountryX,t}$, which I will measure by regressing the target index's excess returns (over the risk free rate) on the daily excess returns of world market index (or alternatively national market index).

For estimating the normal return for each return index I employ the capital asset pricing model. I use 250 days estimation window for calculating the alphas and the betas. The estimation window ends 5 working days before the event date. The beta of a national index is estimated in relation to the return of a world market index. As a most usual convention, I use US three-month government bonds as a risk-free rate (R_f).

$$\overline{R}_{m,t} = \alpha_{CountryX,t} + \beta_{CountryX,t}(R_{M,t} - R_{f,t}) \quad (3)$$

Next, cumulative abnormal returns are accumulated from the daily abnormal returns for each event window.

$$CAR_{t,T} = \sum_{i=1}^{T} AR_i \quad (4)$$

After calculating the CARs for each window, the average CAR is taken from the total sample of the chosen events. After this I test the statistical significance by using the Student's t-test as shown in formula (5).

$$t = \frac{\overline{CAR_{t,T}}}{S_e} \quad (5)$$

Standard error (6) of the sample is the standard deviation of the event CARs divided by the square root of the sample size.

$$S_e = \frac{\sigma_{CAR}}{\sqrt{n}} \quad (6)$$

In order to analyze the robustness of the results I test the significance of cumulative abnormal returns in various event windows.

5.2 OLS regression model

To examine the determinants of abnormal returns in I employ multivariate ordinate least squares regression model. The dependent variable is cumulative abnormal return (CAR), whereas independent variables include political characteristics of the countries and several control

variables. First I present the statistical model and secondly, I elaborate independent variables used in the regression model.

5.2.1 The statistical model

Below is the statistical form of the OLS regression model. CAR denotes the observed cumulative abnormal returns calculated separately for each event (e) in each market (i). β_n denotes the parameters of the variables, which are estimated in the model. ε denotes the error term of the model. I elaborate all the independent variables separately in the next section.

$$
\begin{aligned}
CAR_{e,i} &= \beta_0 + \beta_1 GOLDSTEIN_{e,i} + \beta_2 GLOB_i + \beta_3 DEMOC_i + \beta_4 LNGDP_i + \beta_5 MV/GDP_i \\
&+ \beta_6 LNEXPORT_i + \beta_7 EXPORT/GDP_i + \beta_8 LNGDP_i + \beta_9 GLOB_i \times GOLDSTEIN_{e,i} \\
&+ \beta_{10} DEMOC_i \times GOLDSTEIN_{e,i} + \beta_{11} LNEXPORT_i \times GOLDSTEIN_{e,i} \\
&+ \beta_{12} LNGDP_i \times GOLDSTEIN_{e,i} + \beta_{13} MV/GDP_i \times GOLDSTEIN_{e,i} \\
&+ \beta_{14} EXPORT/GDP_i \times GOLDSTEIN_{e,i} \\
&+ \beta_k YEARDUMMIES_n + \beta_l COUNTRYDUMMIES_i + \varepsilon
\end{aligned}
$$

5.2.2 Independent variables of the OLS regression

Intensity of the political event (Goldstein conflictive-cooperative scale)

As I describe in the previous section I use the Goldstein scale to define the intensity level of the political event. This scale varies between -10 and +8,3, negative denoting the conflictive events and the positive denoting the cooperative events. The variable measuring the level of political event is denoted as GOLDSTEIN in the equation.

Using cross variables to identify interactions

In order to analyse the sensitivity characteristics of national stock markets I use interaction terms, which consist of the country specific political characteristics and the intensity value of the political event (GOLDSTEIN). These characteristic variables are for example globalization (GLOB) and democracy (DEMOC) levels of the measured countries. Consequently, I form cross

products of GOLDSTEIN and other independent variables to identify the possible interaction effect to the dependent variable, i.e. CAR. I note these cross variables as GLOB x GOLDSTEIN, DEMOC x GOLDSTEIN et cetera.

The cross variable specifies a condition under which the causal relationship, (X causes Y, i.e. political event causes a market reaction), could be weaker or stronger. Thus the cross variable (XZ) can be thus interpreted as a sensitivity parameter to the market reactions. Statistically, the interpretation of the interaction could be also so that the cross variable (XZ) denote how the Goldstein value change the Democracy-CAR relationship. However, this interpretation is not valuable in practice. See e.g. West and Aiken (1991) on estimating and interpreting interaction terms.

Level of globalization

GLOB denotes the globalization level of each country. It consists of three constituents, which interaction effects I will test also separately. These are not presented in the statistical model above, but they are denoted intuitively as ECON.GLOB (economic globalization), POLIT.GLOB (political globalization) and SOCIAL GLOB (social globalization).

Level of democracy

DEMOC represent the democracy variable. Like in the case of globalization variable, I will test separately the interaction effects of democracy constituents. I denote these constituents as ELECTIONS (electoral process and pluralism), GOVERNMENT (functioning of government), POLIT PARTICIP (political participation), POLIT CULTURE (political culture) and CIV LIBERTIES (civil liberties).

Control variables

To control the size effect of countries I use the gross domestic product, denoted as GDP in the model. Second control variable is the relative size of national stock market. This measure, denoted as MV/GDP, equals the market value of publicly traded shares divided by the GDP of the country. Additionally I use year dummy variables to control the regression model for yearly variation in the returns. YEARDUMMIES denotes these dummies in the equation. The year

dummy variables get value one (1) if the event happens in the year in question and zero (0) if the event occurs in some other year. The reference year is 2004. COUNTRYDUMMIES are also used in the regression specifications where I test only the effect GOLDSTEIN variable. The country dummies are constructed in the similar manner as year dummies. For analysing the robustness of the regression analysis, I will use also alternative variables to measure globalization; e.g. export figures are used for describing the interconnectedness of countries.

Table 6 provides a correlation matrix for the key independent variables used in the regression analysis. Majority of independent variables seem to be correlated in some level, but it is important to notice that most of the variables are not used in the same specification. Multicollinearity issues are taken into account both in the sample selection phase as well as in the testing phase.

TABLE 6: PEARSON'S CORRELATION MATRIX OF KEY INDEPENDENT VARIABLES

This table shows the Pearson correlation matrix for the independent variables used in the analysis. *** denote statistical significance at the 1% level

INDEPENDENT VARIABLES	DEMOC	ELECT. PROCESS	GOV. FUNCT.	POLITIC. PARTICIP.	POLITIC. CULTURE	CIVIL LIBERTIES	GLOB	ECONOMIC GLOB	SOCIAL GLOB	POLITIC GLOB	MV /GDP	LN GDP	LN EXPORT	GOLD-STEIN
DEMOC	1,000													
ELECT.PROCESS	0,721 ***	1,000												
GOV.FUNCTIONING	0,823 ***	0,460 ***	1,000											
POLITIC.PARTICIP.	0,808 ***	0,477 ***	0,531 ***	1,000										
POLITIC.CULTURE	0,743 ***	0,257 ***	0,578 ***	0,544 ***	1,000									
CIVIL LIBERTIES	0,829 ***	0,767 ***	0,693 ***	0,489 ***	0,446 ***	1,000								
GLOB	0,510 ***	0,237 ***	0,494 ***	0,366 ***	0,550 ***	0,319 ***	1,000							
ECONOMICGLOB	0,339 ***	0,109 ***	0,373 ***	0,224 ***	0,366 ***	0,241 ***	0,901 ***	1,000						
SOCIALGLOB	0,519 ***	0,185 ***	0,524 ***	0,389 ***	0,556 ***	0,344 ***	0,974 ***	0,873 ***	1,000					
POLITICGLOB	0,399 ***	0,395 ***	0,263 ***	0,280 ***	0,439 ***	0,161 ***	0,496 ***	0,145 ***	0,372 ***	1,000				
MV/GDP	0,307 ***	0,096 ***	0,337 ***	0,155 ***	0,414 ***	0,186 ***	0,402 ***	0,393 ***	0,405 ***	0,119 ***	1,000			
LNGDP	0,035 ***	-0,022 ***	-0,077 ***	0,004	0,321 ***	-0,149 ***	0,014 ***	-0,312 ***	-0,019 ***	0,619 ***	0,001	1,000		
LNEXPORT	0,194 ***	-0,069 ***	0,127 ***	0,097 ***	0,533 ***	0,001	0,379 ***	0,073 ***	0,383 ***	0,599 ***	0,098 ***	0,816 ***	1,000	
GOLDSTEIN	-0,018 ***	-0,018 ***	-0,017 ***	-0,003	-0,025 ***	-0,011 ***	-0,037 ***	-0,026 ***	-0,034 ***	-0,036 ***	-0,014 ***	-0,030 ***	-0,035 ***	1,000

6 Results and analysis

In this section I present the results of the study and discuss the meaning of these results. First I describe the effects of political events in the country level, after that I concentrate on industry specific reactions. Finally I show the results for multivariate regression.

6.1 Country level market reactions to bilateral political events

In this section I present the results for stock market reactions to bilateral political events in 32 countries. Table 7 presents the average cumulative abnormal returns of national indexes for both highly negative and positive political news. I report the results here for two different event windows: two and four days, ranging from day 0 to day 1, and day -1 to day 3. The sample size of each country test varies slightly depending on the amount of relevant events. The typical sample size varies around 40 and 60 events, which provides fairly suitable range for statistical analysis. Due to the lack of significant negative events, the samples of few countries (Finland, Norway, Ireland) stay rather small. However, these results are still reported on the table. All the market index data are from Thomson Datastream.

The cumulative abnormal returns do not show any significant market reaction for observed market indexes. In other words the national stock markets do not seem to react significantly to either negative or positive news. Only a few tests, about 1 out of 10, show some statistically significant abnormal returns, but the statistical likelihood can be regarded almost as high as the observed effects occurring by chance. In addition to the insignificance of the t-tests, also the observed sign of the abnormal return seem to be inconsistent with the expected sign. Also there is no clear coherence between the reactions to negative and positive events, i.e. the sign of the measured abnormality seem to be fairly random.

To report few results, in Switzerland, Australia and Japan the markets experience significant abnormal returns around positive political news. These returns are positive as expected and

according to the test, the results are significant at the 5% level. The positive news tests of Taiwan and Turkey show also significant results at the 5% level, but the observed sign is different than the expected.

To conclude the results of Table 7, the statistical tests suggest that the national markets do not produce significant abnormal returns when those countries face bilateral political news. In other words, the effects of observed political events stay very small or in practice insignificant. I will analyze these results more below.

TABLE 7: AVERAGE CUMULATIVE ABNORMAL RETURNS AND T-TESTS, COUNTRY LEVEL ANALYSIS

Cumulative abnormal returns (CARs) are calculated for 32 indices of target countries. The average CAR represent the average abnormal effect the stock index is facing as a result of political actions. Event windows are two days [-1,0] and five [-1,3] days. The results of the negative political events are reported on the left side and the results of positive news on the right side. The N value denotes the number of observation. The t-tests are calculated based on the standerd error of the sample. ***,**,* denote significance at the 00.1, 00.5, 00.1 levels, respectively.

Stock Market	Event Window	Negative Events (N)	Expected Sign	Observed Sign	Average CARs	T-test Statistic		Positive Events (N)	Expected Sign	Observed Sign	Average CARs	T-test Statistic	
Australia	[-1,3]	55	-	+	0,1%	0,735		60	+	+	0,4%	2,271	**
	[0,1]		-	+	0,1%	0,348			+	+	0,4%	2,270	**
Belgium	[-1,3]	25	-	-	-0,4%	-1,735	*	50	+	+	0,2%	1,001	
	[0,1]		-	-	-0,3%	-1,636			+	+	0,2%	1,047	
Canada	[-1,3]	57	-	+	0,0%	0,283		73	+	-	-0,1%	-0,752	
	[0,1]		-	+	0,0%	0,097			+	-	-0,1%	-0,575	
Chile	[-1,3]	8	-	+	0,6%	0,667		72	+	-	-0,1%	-0,601	
	[0,1]		-	+	1,2%	1,970	*		+	-	-0,2%	-0,856	
Denmark	[-1,3]	17	-	-	-0,1%	-0,290		34	+	-	0,0%	-0,123	
	[0,1]		-	-	-0,2%	-0,357			+	-	-0,1%	-0,237	
Finland	[-1,3]	11	-	-	-1,2%	-0,946		38	+	-	0,0%	-0,083	
	[0,1]		-	-	-1,3%	-1,085			+	+	0,0%	0,019	
France	[-1,3]	98	-	+	0,0%	0,208		95	+	-	-0,1%	-0,423	
	[0,1]		-	+	0,0%	0,277			+	-	0,0%	-0,325	
Germany	[-1,3]	97	-	+	0,1%	1,083		97	+	+	0,0%	0,247	
	[0,1]		-	+	0,2%	1,330			+	-	-0,2%	-1,411	
Greece	[-1,3]	24	-	-	-0,5%	-1,176		22	+	-	-0,9%	-1,629	
	[0,1]		-	-	-0,5%	-1,155			+	-	-1,0%	-1,751	*
India	[-1,3]	53	-	+	0,1%	0,128		97	+	+	0,2%	0,975	
	[0,1]		-	+	0,1%	0,194			+	+	0,2%	0,975	
Ireland	[-1,3]	16	-	-	-0,5%	-1,135		22	+	+	0,1%	0,180	
	[0,1]		-	-	-0,2%	-0,682			+	+	0,1%	0,402	
Israel	[-1,3]	57	-	+	0,2%	1,069		35	+	-	-0,3%	-0,939	
	[0,1]		-	+	0,2%	0,905			+	-	-0,3%	-0,939	
Italy	[-1,3]	61	-	+	0,0%	0,166		51	+	-	-0,3%	-1,049	
	[0,1]		-	+	0,1%	0,219			+	-	-0,3%	-1,112	
Japan	[-1,3]	109	-	-	0,0%	-0,121		53	+	+	0,4%	2,113	**
	[0,1]		-	+	0,0%	0,141			+	+	0,4%	2,032	**
Korea	[-1,3]	44	-	+	0,5%	1,350		50	+	-	0,0%	-0,093	
	[0,1]		-	+	0,4%	1,388			+	-	0,0%	-0,026	
Malaysia	[-1,3]	24	-	-	-0,5%	-0,716		40	+	+	0,3%	0,684	
	[0,1]		-	-	-0,6%	-0,821			+	+	0,3%	0,597	
Mexico	[-1,3]	20	-	-	-0,6%	-0,804		60	+	+	0,7%	1,522	
	[0,1]		-	-	-0,6%	-0,749			+	+	0,7%	1,522	
Netherlands	[-1,3]	50	-	-	0,0%	-0,023		57	+	+	0,1%	0,496	
	[0,1]		-	-	0,0%	-0,291			+	+	0,0%	0,291	
New Zealand	[-1,3]	26	-	-	-0,2%	-1,110		31	+	-	-0,2%	-0,541	
	[0,1]		-	-	-0,2%	-0,953			+	-	-0,2%	-0,606	
Norway	[-1,3]	15	-	-	-0,4%	-0,821		35	+	+	0,1%	0,329	
	[0,1]		-	-	-0,3%	-0,743			+	+	0,1%	0,273	
Philippine	[-1,3]	40	-	-	-0,5%	-1,413		55	+	-	-0,1%	-0,309	
	[0,1]		-	-	-0,5%	-1,497			+	-	-0,1%	-0,172	
Portugal	[-1,3]	17	-	-	-0,2%	-0,373		31	+	+	0,2%	0,628	
	[0,1]		-	-	-0,1%	-0,118			+	+	0,1%	0,256	
Singapore	[-1,3]	28	-	-	-0,1%	-0,114		40	+	-	-0,2%	-0,684	
	[0,1]		-	-	-0,2%	-0,517			+	-	-0,1%	-0,329	
South Africa	[-1,3]	33	-	-	0,0%	-0,129		55	+	-	-0,3%	-1,402	
	[0,1]		-	-	0,0%	-0,138			+	-	-0,3%	-1,311	
Spain	[-1,3]	27	-	-	-0,5%	-1,447		40	+	+	0,0%	0,122	
	[0,1]		-	-	-0,5%	-1,484			+	+	0,0%	0,068	
Sweden	[-1,3]	23	-	+	0,1%	0,509		50	+	+	0,5%	1,613	
	[0,1]		-	+	0,1%	0,369			+	+	0,5%	1,621	
Switzerland	[-1,3]	30	-	-	-0,1%	-0,542		45	+	+	0,5%	2,566	**
	[0,1]		-	-	-0,1%	-0,440			+	+	0,4%	2,215	**
Taiwan	[-1,3]	57	-	-	-0,1%	-0,195		40	+	-	-0,8%	-2,315	**
	[0,1]		-	-	-0,1%	-0,312			+	-	-0,7%	-2,121	**
Thailand	[-1,3]	37	-	+	0,6%	0,816		44	+	-	-0,1%	-0,147	
	[0,1]		-	+	0,6%	0,775			+	-	0,0%	-0,080	
Turkey	[-1,3]	46	-	-	-0,2%	-0,298		49	+	-	-1,5%	-2,083	**
	[0,1]		-	-	-0,4%	-0,613			+	-	-1,4%	-1,960	*
UK	[-1,3]	99	-	-	0,0%	-0,088		101	+	+	0,1%	1,426	
	[0,1]		-	-	0,0%	-0,174			+	+	0,1%	1,421	
US	[-1,3]	92	-	+	0,0%	0,400		93	+	+	0,1%	1,633	
	[0,1]		-	+	0,0%	0,306			+	+	0,1%	1,781	*
N (Total)		1396						1715					

6.2 Industry level market reactions to bilateral political events

The sector effects in Japan

The Table 8 shows sector specific market reactions to bilateral political events in Japan. The samples of positive and negative events are same that was used in the country level analysis. The cumulative abnormal returns and their statistical t-test values are presented for two event windows, similar to country level table. The statistical tests for the sector CARs suggest that the abnormality in general is not statistically significant. This suggests that the political events do not have any significant impact on specific sectors in Japan.

However there seems to be slightly more consistency with the sector results in Japan than with the country level results. Moreover, in the negative events tests the hotel sector, resources, farming and chemicals seem to loose. These results are statistically significant at the 5% level for the two days event window. On the other hand, the evidence is quite small in order to make any specific conclusions, but statistically it implies that if Japan faces negative political news from other countries, these sectors seem to loose value. The decrease in hotel sector is in line with Schneider and Troeger (2006a) who show that tourism and aviation industries suffer as result of conflictive events. The evidence from Japanese airlines and airports sector seems to be also supporting this, as it benefits due to positive events and looses due to negative. Nevertheless, the statistically significance is only 10% in positive test as the negative test is not statistically significant.

TABLE 8: MARKET REACTIONS TO POLITICAL EVENTS IN JAPAN (JAPANESE SECTORS)

Cumulative abnormal returns (CARs) are calculated for 25 different industry indices. The average CAR represent the average abnormal effect the stock index is facing as a result of political actions. Event windows are two days [-1,0] and five [-1,3] days. The results of the negative political events are reported on the left side and the results of positive news on the right side. The N value denotes the number of observation The t-tests are calculated based on the standerd error of the sample. ***,**,* denote significance at the 00.1, 00.5, 00.1 levels, respectively.

		Negative Events (N=109)					Positive Events (N=53)				
Japan Sector Indices	Event Window	Expected Sign	Observed Sign	Average CARs	T-test Statistic		Expected Sign	Observed Sign	Average CARs	T-test Statistic	
Auto	[-1,3]	-	+	0,09%	0,570		+	+	0,22%	0,812	
	[0,1]	-	+	0,09%	0,596		+	+	0,23%	0,840	
Hotel	[-1,3]	-	-	-0,41%	-2,113	**	+	+	0,15%	0,677	
	[0,1]	-	-	-0,41%	-2,121	**	+	+	0,13%	0,613	
Bank	[-1,3]	-	+	0,16%	1,118		+	+	0,36%	1,402	
	[0,1]	-	+	0,16%	1,068		+	+	0,38%	1,480	
Air	[-1,3]	-	-	-0,12%	-0,705		+	+	0,55%	1,683	*
	[0,1]	-	-	-0,13%	-0,772		+	+	0,55%	1,680	*
Media	[-1,3]	-	-	-0,08%	-0,650		+	+	0,23%	1,139	
	[0,1]	-	-	-0,08%	-0,669		+	+	0,24%	1,194	
Semiconductors	[-1,3]	-	-	-0,03%	-0,129		+	-	-0,18%	-0,497	
	[0,1]	-	-	-0,06%	-0,289		+	-	-0,18%	-0,502	
Oil	[-1,3]	-	-	-0,20%	-1,059		+	+	0,01%	0,050	
	[0,1]	-	-	-0,20%	-1,046		+	-	-0,01%	-0,037	
Health	[-1,3]	-	-	-0,16%	-0,691		+	+	0,16%	0,574	
	[0,1]	-	-	-0,17%	-0,731		+	+	0,19%	0,659	
Financial	[-1,3]	-	+	0,18%	1,556		+	+	0,27%	1,351	
	[0,1]	-	+	0,18%	1,533		+	+	0,28%	1,424	
Utilities	[-1,3]	-	+	0,08%	0,642		+	-	-0,10%	-0,573	
	[0,1]	-	+	0,07%	0,558		+	-	-0,10%	-0,544	
Transport	[-1,3]	-	+	0,00%	0,028		+	+	0,33%	1,801	*
	[0,1]	-	+	0,01%	0,108		+	+	0,33%	1,803	*
Resources	[-1,3]	-	-	-0,37%	-2,318	**	+	+	0,23%	1,075	
	[0,1]	-	-	-0,36%	-2,276	**	+	+	0,21%	1,010	
Electronics	[-1,3]	-	+	0,01%	0,056		+	+	0,05%	0,207	
	[0,1]	-	+	0,01%	0,042		+	+	0,06%	0,290	
Investment Banking	[-1,3]	-	+	0,23%	1,307		+	+	0,24%	0,835	
	[0,1]	-	+	0,25%	1,440		+	+	0,26%	0,924	
Real Estate	[-1,3]	-	+	0,09%	0,489		+	-	-0,31%	-1,412	
	[0,1]	-	+	0,10%	0,540		+	-	-0,29%	-1,344	
Insurance	[-1,3]	-	-	-0,10%	-0,754		+	-	-0,30%	-1,485	
	[0,1]	-	-	-0,12%	-0,859		+	-	-0,34%	-1,766	*
Information Tech.	[-1,3]	-	+	0,05%	0,360		+	-	-0,08%	-0,389	
	[0,1]	-	+	0,05%	0,326		+	-	-0,09%	-0,458	
Engin./Machinery	[-1,3]	-	-	-0,05%	-0,591		+	-	-0,01%	-0,107	
	[0,1]	-	-	-0,05%	-0,572		+	-	-0,02%	-0,125	
Consumer Finance	[-1,3]	-	-	-0,12%	-0,633		+	-	-0,05%	-0,259	
	[0,1]	-	-	-0,11%	-0,613		+	-	-0,03%	-0,172	
Non Financial	[-1,3]	-	-	-0,06%	-1,535		+	-	-0,02%	-0,455	
	[0,1]	-	-	-0,06%	-1,518		+	-	-0,03%	-0,510	
Software	[-1,3]	-	-	-0,18%	-0,522		+	+	0,72%	1,816	*
	[0,1]	-	-	-0,17%	-0,507		+	+	0,64%	1,646	
Farming	[-1,3]	-	-	-0,27%	-1,821	*	+	+	0,00%	0,013	
	[0,1]	-	-	-0,30%	-2,003	**	+	-	-0,03%	-0,163	
Retail	[-1,3]	-	-	-0,05%	-0,376		+	+	0,08%	0,527	
	[0,1]	-	-	-0,04%	-0,302		+	+	0,03%	0,246	
Chemicals	[-1,3]	-	-	-0,17%	-1,867	*	+	-	-0,13%	-1,057	
	[0,1]	-	-	-0,18%	-2,045	**	+	-	-0,12%	-0,967	
Forest	[-1,3]	-	-	-0,06%	-0,421		+	+	0,01%	0,052	
	[0,1]	-	-	-0,07%	-0,485		+	+	0,02%	0,108	

The sector effects in United Kingdom

Table 9 describes the stock market reaction to bilateral political events in United Kingdom. The cumulative abnormal returns (CARs) and their t-tests are calculated for a cross-section of UK industrial sectors. The presentation of UK sector effects is made congruent with Japanese sector effects with the exception that the UK industry CARs are observed only for 24 industrial indexes, as there was no index available for UK Semiconductor industry. The sample size for negative news is 99 and for positive news 101. The financial data is gathered from Thomson Datastream.

The sector reactions to political news in United Kingdom provide fairly similar evidence as the Japanese sector reactions. As a consequence, the political events do not seem to have any major effects in UK markets, either. Nevertheless, as I ran these similar tests for multiple countries, UK seems to produce the most significant results. In fact, some UK industries result statistically significant abnormal returns at the level of 1%. One of these is the Farming sector (using Datastream index UK-DS Food Producing/Processing), which loose -0,4 % as a result of negative news. Other interesting finding is also the reaction in the financial sector. When UK face positive political signals, its Banking and Financial sectors seem to benefit, producing 0,5% and 0,3% abnormal returns, which are statistically significant at the 1% level. Also Insurance sector seems to win (significance level 5%), whereas Resources, Oil and Non-financial sector indexes seem to loose at significance levels 5%, 5% and 1%, respectively.

Only less than 2 out of 10 sector indexes produce statistically significant abnormal returns, which indicate that UK sectors in general do not react significantly to political news, neither to positive nor negative. However, the clearly significant negative results in Farming sector and the positive reactions in financial sectors suggest still some industry specific anticipation. As UK is a big food exporter and the food sector is usually fairly sensitive for customer choices, the negative international political signals directed to UK might have produced negative market anticipation for UK food industry and thus lead to statistically significant abnormal returns. Analogically also the positive political signals might have benefited UK financial sector as financial sector is usually sensitive to general consumer confidence. Nonetheless, further speculation and comparing of sectors is not rational as likelihood of chance is too high.

TABLE 9: MARKET REACTIONS TO POLITICAL EVENTS IN UNITED KINGDOM (UK SECTORS)

Cumulative abnormal returns (CARs) are calculated for 24 different industry indices. The average CAR represent the average abnormal effect the stock index is facing as a result of political actions. Event windows are two days [-1,0] and five [-1,3] days. The results of the negative political events are reported on the left side and the results of positive news on the right side. The N value denotes the number of observation. The t-tests are calculated based on the standerd error of the sample. ***,**,* denote significance at the 00.1, 00.5, 00.1 levels

		Negative Events (N=99)					Positive Events (N=101)				
UK Sector Indeces	Event Window	Expected Sign	Observed Sign	Average CARs	T-test Statistic		Expected Sign	Observed Sign	Average CARs	T-test Statistic	
Auto	[-1,3]	-	+	0,05%	0,251		+	+	0,12%	0,496	
	[0,1]	-	+	0,05%	0,277		+	+	0,12%	0,476	
Hotel	[-1,3]	-	-	-0,22%	-1,398		+	-	-0,01%	-0,104	
	[0,1]	-	-	-0,20%	-1,321		+	-	-0,03%	-0,252	
Bank	[-1,3]	-	+	0,06%	0,520		+	+	0,46%	3,574	***
	[0,1]	-	+	0,08%	0,626		+	+	0,45%	3,524	***
Air	[-1,3]	-	-	-0,26%	-1,847	*	+	-	-0,03%	-0,165	
	[0,1]	-	-	-0,24%	-1,686	*	+	+	0,01%	0,070	
Media	[-1,3]	-	+	0,04%	0,199		+	+	0,18%	1,426	
	[0,1]	-	+	0,03%	0,166		+	+	0,15%	1,263	
Oil	[-1,3]	-	-	-0,07%	-0,353		+	-	-0,32%	-2,377	**
	[0,1]	-	-	-0,09%	-0,440		+	-	-0,30%	-2,276	**
Health	[-1,3]	-	-	-0,18%	-1,174		+	+	0,13%	1,038	
	[0,1]	-	-	-0,16%	-1,024		+	+	0,15%	1,144	
Financial	[-1,3]	-	+	0,07%	0,913		+	+	0,30%	3,675	***
	[0,1]	-	+	0,08%	0,987		+	+	0,29%	3,606	***
Utilities	[-1,3]	-	-	-0,08%	-0,525		+	-	-0,16%	-1,154	
	[0,1]	-	-	-0,07%	-0,449		+	-	-0,14%	-0,997	
Transport	[-1,3]	-	-	-0,01%	-0,099		+	-	-0,06%	-0,493	
	[0,1]	-	-	-0,01%	-0,081		+	-	-0,04%	-0,344	
Resources	[-1,3]	-	-	-0,06%	-0,378		+	-	-0,26%	-2,165	**
	[0,1]	-	-	-0,08%	-0,461		+	-	-0,25%	-2,082	**
Electronics	[-1,3]	-	+	0,05%	0,250		+	+	0,10%	0,402	
	[0,1]	-	+	0,03%	0,146		+	+	0,11%	0,432	
Investment Banking	[-1,3]	-	-	-0,11%	-0,587		+	+	0,21%	1,294	
	[0,1]	-	-	-0,11%	-0,570		+	+	0,22%	1,336	
Real Estate	[-1,3]	-	+	0,04%	0,287		+	-	-0,07%	-0,631	
	[0,1]	-	+	0,04%	0,310		+	-	-0,09%	-0,777	
Insurance	[-1,3]	-	+	0,04%	0,218		+	+	0,34%	2,159	**
	[0,1]	-	+	0,04%	0,242		+	+	0,31%	2,040	**
Information Tech.	[-1,3]	-	+	0,09%	0,488		+	-	-0,11%	-0,728	
	[0,1]	-	+	0,09%	0,463		+	-	-0,10%	-0,646	
Engin./Machinery	[-1,3]	-	-	-0,03%	-0,214		+	+	0,10%	0,684	
	[0,1]	-	-	-0,02%	-0,162		+	+	0,09%	0,658	
Consumer Finance	[-1,3]	-	-	-0,19%	-0,857		+	-	-0,08%	-0,510	
	[0,1]	-	-	-0,18%	-0,819		+	-	-0,08%	-0,463	
Non Financial	[-1,3]	-	-	-0,01%	-0,183		+	-	-0,10%	-3,882	***
	[0,1]	-	-	-0,01%	-0,224		+	-	-0,10%	-3,821	***
Software	[-1,3]	-	+	0,08%	0,366		+	-	-0,18%	-0,924	
	[0,1]	-	+	0,11%	0,518		+	-	-0,16%	-0,868	
Farming	[-1,3]	-	-	-0,37%	-3,009	***	+	-	-0,02%	-0,146	
	[0,1]	-	-	-0,38%	-3,036	***	+	-	-0,01%	-0,096	
Retail	[-1,3]	-	+	0,06%	0,428		+	+	0,04%	0,451	
	[0,1]	-	+	0,07%	0,493		+	+	0,04%	0,452	
Chemicals	[-1,3]	-	-	-0,06%	-0,597		+	+	0,12%	1,014	
	[0,1]	-	-	-0,07%	-0,686		+	+	0,14%	1,119	
Forest	[-1,3]	-	-	-0,49%	-1,613		+	-	-0,12%	-0,442	
	[0,1]	-	-	-0,46%	-1,543		+	-	-0,12%	-0,456	

Analysis of sector and country level effects of political bilateral events

As I discuss above, I ran similar tests for several national markets to identify potential industry specific reactions, but I present the reactions only in Japan and UK markets, as they will provide the sufficient illustration of sector specific effects. The not-presented sector tests were made for Canadian, Finnish, French, German and Korean markets, and as mentioned these results do not provide any divergent evidence compared to UK and Japanese sectors.

To enhance the robustness of the country and sector specific tests, cumulative abnormal returns are calculated totally for seven different event windows [T_1, T_2], which are [-5, 10], [-5, 5], [-2, 8], [-2, 5], [-1, 3] and [0,1]. The reported windows are however only for 5-days and 2-days windows, [-1, 3] and [0,1], respectively. These results are sufficient to make the conclusion that these bilateral political events do not produce significant abnormality in the observed stock markets. Undoubtedly the results do not either provide supportive evidence for the first and second hypotheses, i.e. negative (positive) bilateral political actions targeted towards country X have a negative (positive) impact on country X's stock markets or its sectors. The main reason for this conclusion is that throughout the sector and country level results the amount of statistically significant abnormal returns remains very small; the likelihood of them to occur is almost equal to chance and on the other hand the expected results and differences between positive and negative results are not coherent. Therefore these results do not either provide realistic possibility to analyse further the possible relationship of stock market effects and political events. On the other hand subsequent sections will provide regression analysis, in which I use a much larger and finer sample of stock market returns, and which enables me to analyse stock market behaviour in relation to bilateral political events and country characteristics more in detail. Before presenting the results of the regression analysis I show first some sector effects of fatal terrorist attacks.

6.3 Industry level market reactions to fatal terrorist attacks

Unlike the previous section, this section shows effects of ultimate international shocks, which are not bilateral political actions from other countries, but fatal attacks made by terrorist organizations. In contrary to the significant bilateral political events, terrorist attacks seem to be

more significant events in financial markets. Table 10 presents the effects of these terrorist attacks in six different countries: namely in Canada, Finland, Japan, Korea, UK and United States.

TABLE 10: INDUSTRY LEVEL MARKET REACTIONS TO TERRORIST ATTACKS IN SIX COUNTRIES

Cumulative abnormal returns (CARs) are calculated for 24 different industry indices in six different countries. The average CAR represent the average abnormal reaction the stock index is facing during fatal terrorist attacks. Event windows are two days [-1,0] and five [-1,3] days. The number of observations is 27. The t-test values are calculated based on the standerd error of the sample. ***,**,* denote significance at the 00.1, 00.5, 0.1 levels, respectively.

		Canada			**Finland**			**Japan**			**Korea**			**UK**			**USA**		
		CAR	*t-value*		*CAR*	*t-value*		*CAR*	*t-value*		*CAR*	*t-value*		*CAR*	*t-value*		*CAR*	*t-value*	
Auto	[-1,3]	-0,5%	-0,9		-0,2%	-0,2		0,1%	0,3		-0,3%	-0,5		0,7%	1,7		0,1%	0,3	
	[0,1]	-0,4%	-0,7		-0,2%	-0,2		0,0%	0,2		-0,4%	-0,7		0,7%	1,7		0,3%	0,8	
Hotel	[-1,3]	-0,6%	-1,4		-	-		0,1%	0,7		-	-		-0,6%	-1,3		-0,4%	-2,2	**
	[0,1]	-0,6%	-1,3		-	-		0,1%	0,6		-	-		-0,5%	-1,3		-0,4%	-2,4	**
Bank	[-1,3]	-0,3%	-1,0		-1,8%	-4,4	***	-0,3%	-1,3		0,0%	0,0		-0,4%	-1,6		0,1%	0,5	
	[0,1]	-0,3%	-1,1		-1,8%	-4,4	***	-0,4%	-1,4		-0,1%	-0,2		-0,4%	-1,5		0,2%	0,9	
Air	[-1,3]	0,2%	0,3		-1,1%	-2,4	**	0,0%	-0,1		-0,2%	-0,5		-0,9%	-1,6		0,2%	0,4	
	[0,1]	0,2%	0,3		-1,1%	-2,4	**	-0,1%	-0,2		-0,3%	-0,7		-0,9%	-1,6		0,0%	0,0	
Media	[-1,3]	-0,2%	-1,0		-0,8%	-2,6	**	0,2%	1,2		-	-		0,0%	0,2		-0,2%	-0,9	
	[0,1]	-0,2%	-0,9		-0,8%	-2,6	**	0,2%	1,3		-	-		0,0%	0,1		-0,1%	-0,9	
Semiconductors	[-1,3]	-	-		-	-		0,3%	0,8		-	-		-	-		-0,8%	-1,6	
	[0,1]	-	-		-	-		0,2%	0,7		-	-		-	-		-1,0%	-2,1	**
Oil	[-1,3]	0,9%	3,1	***	-	-		-1,0%	-2,3	**	0,2%	0,5		0,4%	1,3		0,2%	0,7	
	[0,1]	0,8%	2,6	**	-	-		-0,8%	-2,1	**	0,3%	0,8		0,3%	1,2		0,1%	0,4	
Health	[-1,3]	0,0%	-0,1		-0,8%	-2,1	**	0,0%	0,0		-	-		0,5%	1,7		-0,1%	-0,4	
	[0,1]	0,0%	0,1		-0,8%	-2,1	**	0,0%	-0,1		-	-		0,6%	2,1	**	0,0%	0,0	
Financial	[-1,3]	-0,3%	-1,5		-1,7%	-4,8	***	-0,3%	-1,6		-0,2%	-0,9		-0,3%	-2,0	*	0,0%	0,2	
	[0,1]	-0,3%	-1,3		-1,7%	-4,8	***	-0,3%	-1,6		-0,2%	-0,7		-0,3%	-1,9	*	0,1%	0,8	
Utilities	[-1,3]	-0,1%	-0,6		-0,4%	-1,6		0,2%	1,3		-0,3%	-0,9		0,0%	-0,2		0,2%	1,6	
	[0,1]	-0,1%	-0,7		-0,4%	-1,6		0,2%	1,2		-0,3%	-0,9		-0,1%	-0,3		0,2%	1,3	
Transport	[-1,3]	-0,7%	-1,6		-0,8%	-3,0	***	0,0%	0,3		-0,3%	-0,8		-0,6%	-1,9	*	-0,1%	-0,2	
	[0,1]	-0,7%	-1,6		-0,8%	-3,0	***	0,1%	0,8		-0,1%	-0,4		-0,6%	-1,9	*	-0,2%	-0,6	
Resources	[-1,3]	0,6%	3,3	***	-	-		-0,4%	-1,3		0,1%	0,3		0,2%	1,0		0,3%	1,1	
	[0,1]	0,5%	2,8	***	-	-		-0,2%	-0,9		0,3%	0,6		0,2%	1,1		0,2%	0,7	
Electronics	[-1,3]	-	-		-0,9%	-2,6	**	0,2%	1,2		-0,3%	-0,9		0,5%	1,2		-0,3%	-1,2	
	[0,1]	-	-		-0,9%	-2,6	**	0,2%	1,1		-0,3%	-0,7		0,5%	1,3		-0,4%	-1,6	
Investment Banking	[-1,3]	-	-		-	-		-0,8%	-2,6	**	-0,5%	-1,0		-0,2%	-0,7		0,2%	0,5	
	[0,1]	-	-		-	-		-0,8%	-2,6	**	-0,5%	-1,0		-0,2%	-0,8		0,2%	0,5	
Real Estate	[-1,3]	-0,3%	-1,5		-1,4%	-3,3	***	-0,2%	-0,8		-1,3%	-3,3	***	0,0%	0,0		0,0%	-0,2	
	[0,1]	-0,3%	-1,4		-1,4%	-3,3	***	-0,2%	-0,7		-1,3%	-3,3	***	0,0%	0,0		-0,1%	-0,3	
Insurance	[-1,3]	-0,2%	-0,7		-1,1%	-2,7	**	-0,1%	-0,5		-1,0%	-2,0	*	-1,2%	-1,6		-0,1%	-0,4	
	[0,1]	-0,2%	-0,5		-1,1%	-2,7	**	-0,1%	-0,3		-1,0%	-1,9	*	-1,2%	-1,7		0,1%	0,6	
Information Tech	[-1,3]	0,0%	0,0		-1,2%	-3,7	***	0,2%	0,9		-	-		0,0%	0,0		-0,3%	-1,1	
	[0,1]	0,1%	0,2		-1,2%	-3,7	***	0,2%	0,8		-	-		0,0%	-0,1		-0,4%	-1,5	
Engineer/Machiner.	[-1,3]	0,3%	1,2		-1,2%	-3,7	***	-0,2%	-1,3		-0,5%	-1,2		0,2%	0,9		0,0%	0,0	
	[0,1]	0,3%	1,0		-1,2%	-3,7	***	-0,2%	-1,1		-0,4%	-0,8		0,2%	1,0		-0,1%	-0,3	
Consumer Finance	[-1,3]	-	-		-	-		-0,4%	-1,2		-1,1%	-3,0	***	0,0%	-0,1		0,2%	0,8	
	[0,1]	-	-		-	-		-0,4%	-1,3		-1,1%	-3,1	***	-0,1%	-0,2		0,2%	1,0	
Non Financial	[-1,3]	0,1%	2,2	**	-1,0%	-3,6	***	0,1%	1,0		0,0%	0,8		0,1%	2,0	**	0,0%	-0,2	
	[0,1]	0,1%	1,9	*	-1,0%	-3,6	***	0,1%	1,0		0,0%	0,6		0,1%	2,0	*	0,0%	-1,0	
Software	[-1,3]	0,1%	0,1		-1,2%	-3,4	***	0,2%	0,7		-0,8%	-1,8	*	0,1%	0,3		-0,6%	-1,6	
	[0,1]	0,1%	0,1		-1,2%	-3,4	***	0,2%	0,7		-0,9%	-1,9	*	0,0%	0,1		-0,7%	-1,9	*
Farming	[-1,3]	-0,3%	-1,2		-	-		-0,1%	-0,2		-0,9%	-2,5	**	0,1%	0,5		0,0%	0,2	
	[0,1]	-0,3%	-1,4		-	-		-0,1%	-0,5		-1,0%	-3,0	**	0,1%	0,3		0,0%	0,0	
Retail	[-1,3]	-0,1%	-0,4		-1,1%	-3,3	***	-0,2%	-0,8		-1,3%	-2,5	**	0,0%	-0,1		-0,3%	-1,5	
	[0,1]	-0,1%	-0,3		-1,1%	-3,3	***	-0,1%	-0,7		-1,2%	-2,3	**	0,0%	-0,1		-0,3%	-1,6	
Chemicals	[-1,3]	0,1%	0,3		-1,2%	-3,4	***	-0,1%	-0,8		-0,2%	-0,4		-0,4%	-2,0	*	0,0%	0,0	
	[0,1]	0,1%	0,4		-1,2%	-3,4	***	-0,1%	-0,5		-0,1%	-0,2		-0,4%	-2,2	**	0,0%	0,1	
Forest	[-1,3]	-0,8%	-2,0	*	-1,1%	-3,7	***	-0,2%	-0,7		-1,0%	-4,0	***	-0,6%	-1,4		-0,3%	-0,8	
	[0,1]	-0,6%	-2,2	**	-1,1%	-3,7	***	-0,2%	-0,7		-1,0%	-4,0	***	-0,6%	-1,3		-0,2%	-0,8	

Table 11 shows summarized version of the industries that show statistically significant CARs at the 5% and 1% levels. When looking the statistically significant CARs, the negative reaction seems to be the most common among all the observed industries. Only a small number of industries seem to produce statistically significant positive returns, most interestingly Canadian Resource and Oil sectors. Their CARs are significant at the 1% level and the increase is 0,5% and 0,9%, respectively. Nonetheless, the most significant example is Finland, which sectors seem to loose most as a result of these incidents. Economic wise banking and finance sectors loose most by dropping almost 2%, but also other important Finnish industries such as Forest and IT sectors loose significantly as a result of the terrorist incidents. Also few sectors in Korean market seem to loose significantly, whereas the effects in Japan and in USA stay smaller. In Japan and in United States the abnormal returns are significant only among five different sectors and they are significant only at the 5% level.

TABLE 11: SUMMARIZED INDUSTRY LEVEL MARKET REACTIONS (CARS) TO TERRORIST ATTACKS

This table summarizes the sectors in Canada, Finland, Korea, Japan, UK and US that win and loose as a result of fata terrorist attacks. CARs are the cumulative abnormal returns, measured either in [0,1] or [-1,3] event windows. The two firs paragraphs from the left shows negative matket reactions and the third paragraph the sectors that experience positive CARs. ***,**, denote significance at the 0.01, 0.05 levels, respectively.

Negative market reaction						**Positive market reaction**		
Country / Sector	*CAR*		*Country / Sector*	*CAR*		*Country / Sector*	*CAR*	
CANADA			**KOREA**			**CANADA**		
Forest	-0,6%	**	Real Estate	-1,3%	***	Oil	0,9%	***
			Consumer Finance	-1,1%	***	Resources	0,5%	***
FINLAND			Farming	-1,0%	**	Non Financial	0,1%	**
Bank	-1,8%	***	Retail	-1,2%	**			
Air	-1,1%	**	Forest	-1,0%	***	**UK**		
Media	-0,8%	**				Health	0,6%	**
Health	-0,8%	**	**JAPAN**			Non Financial	0,1%	**
Financial	-1,7%	***	Oil	-0,8%	**			
Transport	-0,8%	***	Investment Banking	-0,8%	**			
Electronics	-0,9%	**						
Real Estate	-1,4%	***	**UK**					
Insurance	-1,1%	**	Chemicals	-0,4%	**			
Information Technology	-1,2%	***						
Engineering / Machinery	-1,2%	***	**US**					
Non Financial	-1,0%	***	Hotel	-0,4%	**			
Software	-1,2%	***	Semiconductors	-1,0%	**			
Retail	-1,1%	***						
Chemicals	-1,2%	***						
Forest	-1,1%	***						

It is important to notice, that the sample of terrorist attacks is same for all industry tests, so in that sense the reactions are comparable with each other. As a result, it seems that terrorist incidents seem to have significant negative results in many sectors, but on the other hand not systematically in every country that were tested.

Similar to bilateral event tests, one cannot make very strong country specific conclusions from these results, but nevertheless I am able to make two interesting observations. Firstly, almost all the significant market effects of fatal terrorist incidents seem to be coherently negative. This is in line with expected results and supports also previous studies, see e.g. Eldor and Melnick (2004), Chen and Siems (2004) and Karolyi and Martell (2006). Secondly, comparing the effects of fatal attacks to highly conflictive or cooperative bilateral political events, it seems roughly speaking that terrorist attacks produce more uncertainty and disturbance in markets than the direct political actions from other countries. Although this evidence stays in fairly anecdotal level, it supports the findings of Eldor and Melnick (2004) in Israeli markets, that stock markets do not become desensitized to terror attacks even if they happen fairly often. To conclude, the evidence of terrorist attacks provides support for the hypothesis that terrorist attacks have a negative impact in few industries in Finland and Korea.

6.4 Multivariate regression analysis

6.4.1 Goldstein scale, globalization, democracy

Table 12 presents OLS regression results on cumulative abnormal returns (CARs). The sample size of 44 832 events includes both negative and positive bilateral events. I discuss first the impact of Goldstein value to the CARs and then I focus on the impact of the interaction terms.

TABLE 12: OLS REGRESSION RESULTS, TOTAL SAMPLE

The table reports the results for OLS regression on cumulative abnormal returns in stock markets of 29 target countries. GOLDSTEIN variable symbolizes the severity of the political event in confltive-cooperative scale. GLOB and DEMOC denote the level of globalization and democracy of each country, respectively. Cross variables (multiplication with GOLDSTEIN) depicts the interaction between the specific country characteristic factor and political event intensity value. MV/GDP, LNGDP are used as alternative control variables to catch the effect of relative stock market size and the size of the economy, respectively. Natural logarithmic transformation, denoted as LN, is made for continuous GDP variable. T-test values are reported in parentheses. ***, **, * denote significance at the 0.01, 0.05, 0.1 level, respectively. Country dummies (only in specification 1) and year dummies are used as control variables. Constant terms and dummies are included in the model but not reported in this table.

Dependent Variable	Cumulative Abnormal Returns (%)					
Specification	1	2	3	4	5	6
Independent variables						
GOLDSTEIN	0,0093 ***	0,0097 ***	0,0096 ***	0,0398	0,0773 ***	0,0625 *
	(2,710)	(2,856)	(2,809)	(1,879)	(3,198)	(1,937)
DEMOC		0,0017	0,0023 **	0,0022 *		0,0019
		(1,615)	(2,010)	(1,879)		(1,484)
GLOB			-0,0020 **		0,0005	-0,0007
			(-2,167)		(0,500)	(-0,655)
DEMOC x GOLDSTEIN				-0,0004		0,0003
				(-0,970)		(0,733)
GLOB x GOLDSTEIN					-0,0009 ***	-0,0010 ***
					(-2,830)	(-2,800)
Control variables						
MV/GDP		-0,0324 **		-0,0324 **	-0,0190	
		(-1,961)		(-1,964)	(-1,105)	
LN GDP			0,0015			0,0015
			(0,266)			(0,253)
Adjusted R2	.001	.001	.001	.001	.001	.001
Number of observations	44 832	44 832	44 832	44 832	44 832	44 832

The source and the target countries of the news are Australia, Belgium, Canada, Chile, Denmark, Finland, France, Germany, India, Ireland, Italy, Japan, Korea, Malaysia, Mexico, Netherlands, New Zealand, Norway, Philippine, Singapore, South Africa, Spain, Sweden, Switzerland, Taiwan, Thailand, Turkey, United Kingdom and United States.

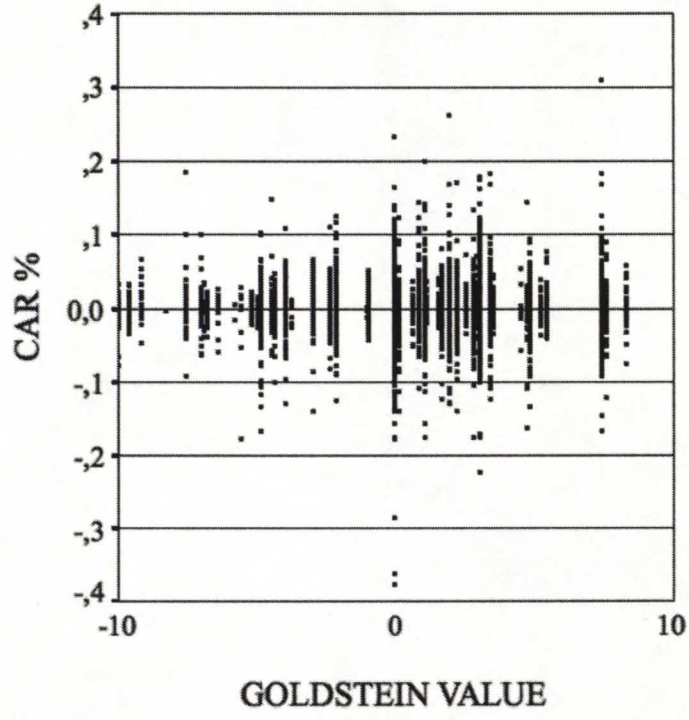
Parameter estimates of the Goldstein variable

In Table 12 the intensity of political events (GOLDSTEIN) is positive in all specifications. The parameter estimate is also statistically significant at the 1% level in specifications 1,2,3 and 5. The first specification presents the variable alone and it seems to explain CARs by 0,0093 units. It means that when Goldstein value increases (or decreases) the market reaction (CAR) is more positive (or negative). In other words, the parameter estimate suggests that if Goldstein value

increases by 1% (theoretically), the CAR increase by 0,0093%. The model specification is controlled both with country and year dummies. Figure 3 provides a graphical illustration of the correlation between CARs and the Goldstein value, implying that the trend is not very visible; nevertheless the correlation is positive and statistically significant.

FIGURE 3: SCATTER PLOT OF CARS AND GOLDSTEIN POLITICAL INTENSITY VALUES

This figure is scatter plot between bilateral political event CARs and the political severity values of the events. Political severity of events is determined by using Goldstein conflictive-cooperative scale, -10 denoting the most conflictive bilateral event and 8,3 the most cooperative bilateral event. Number of observations is 48 833 and Pearson's correlation between CARs and Goldstein values is 0,013. The result is statistically significant at the 1% level.



The significant parameter estimate of Goldstein variable explains the dependent variable, and thus the result provides support for the hypothesis 4 that the intensity of political events has an effect on the stock market reactions in target countries. There is a significant positive correlation between political events and stock market reactions.

Parameter estimates of the GLOB and DEMOC variables

Although the economic value of the Goldstein parameter does not seem to be substantial large in the regression result, its sign and statistical significance, and more specifically confirmation of its causal relationship, provide very interesting implications for analysing the effects of country specific characteristics. Moreover, the cross variables, multiplied with Goldstein value, specify conditions when the causal relationship of event intensity and market reactions could be stronger or weaker. These cross variables are used as sensitivity parameter in specifications 4-6.

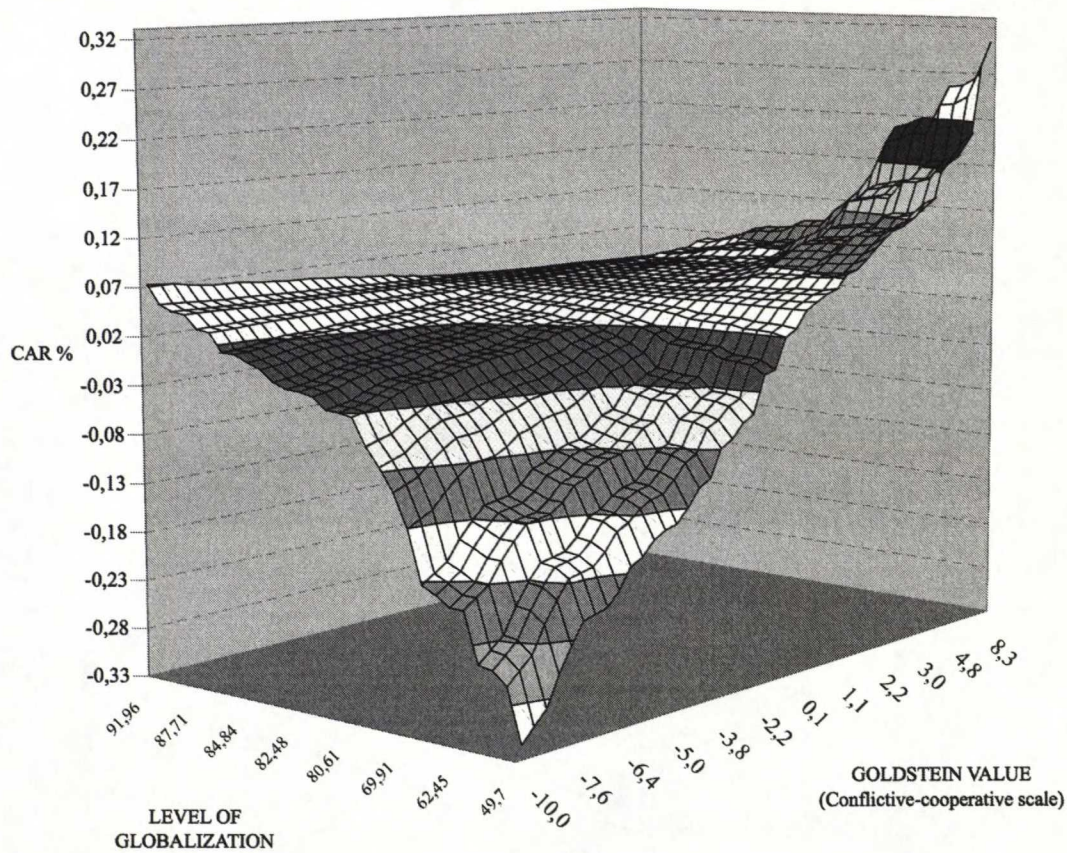
The level of democracy is not statistically significant (specification 2) when tested independently, but jointly with globalization both globalization and democracy (specification 3) becomes statistically significant at the 5% level. The statistical interpretation of these variables is that the stock market reaction is more positive in democratic countries and more negative in globalized countries. However, the economic interpretation of these coefficients is not meaningful, as they are continuous variables over time and thus not provide practical explanatory value on political event CARs. Thus, specifications 2-3 are merely justifications of testing the interaction terms.

Parameter estimates of the Globalization-Goldstein interaction term

The most interesting result is the specification 5, which shows that the interaction term of globalization and the Goldstein value is negative and statistically significant at the 1% level. This negative and significant estimate of the interaction signals that level of globalization seems to mitigate the Goldstein-CAR relationship. In other words when globalization increases the relationship of Goldstein-CAR seems to weaken, whereas when globalization level decreases the Goldstein-CAR relationship strengthens. The Figure 4 shows example calculations of this curvilinear Goldstein-CAR relationship in a graphical form. I use the same globalization levels (29 countries) and Goldstein event types (45 political event types) as in the actual sample, to plot the estimated model parameters in 3D diagram. In other words, the graph is plotted by calculating the OLS regression results in specification 5 as follows: CAR = 0,0773 x GOLDSTEIN + 0,0005 x GLOB – 0,0009 x GOLDSTEIN x GLOB.

FIGURE 4: STOCK MARKET REACTIONS TO POLITICAL EVENTS AND GLOBALIZATION LEVEL

This figure shows graphically the example calculations for the OLS regression model and its estimates (see specification 5 above: CAR = 0,0773 x GOLDSTEIN + 0,0005 x GLOB – 0,0009 x GOLDSTEIN x GLOB). The figure illustrates how stock markets (CARs) react to the interaction of Goldstein (intensity value of political event) and country specific globalization levels according to the model estimate. The example values used in the diagram are the country specific globalization levels and Goldstein values used for the estimation.



The form in Figure 4 illustrates that countries with smaller GLOB are more sensitive to bilateral political events than the countries of higher GLOB. In the figure the level of globalization ranges between 49,70 and 91,96. The lowest globalization levels are calculated for the levels in India (49,70), Mexico (55,49) and Thailand (56), right-hand side in the figure. According to the parameter estimates the lowest level of globalization corresponds -0,3% return decrease (two-day CAR) when most conflictive political events occur, whereas in case of the most cooperative events the market index would hypothetical experience positive CARs around 0,3%. In contrast, in the countries that have a higher position in the globalization ranking, the markets seem to be

rather insensitive to the political events. Calculation example for three highest countries in the globalization raking, namely Belgium (91,96), Sweden (89,89) and United Kingdom (89,29) suggests that stock market reactions for political events are above 0% but less than 0,1% in all Goldstein levels, i.e. the reactions are almost non-existent compared to the countries of low globalization levels.

It seems that more interconnected economies are less sensitive to bilateral political events or at least their financial markets do not react as much as in countries that are less interconnected. This result supports the hypothesis 6 and is line with evidence of Gartzke and Li (2003) that globalization enhances economic stability.

Interaction term of democratic level (DEMOC x GOLDSTEIN) does not appear to be robust like the globalization cross variable in the model. It is not statistically significant in any specification, and in the fourth specification also the GOLDSTEIN looses its robustness. In the full model (specification 6), globalization variable remains robust, whereas GOLDSTEIN is significant only at the 10% level. This result does not provide support for the hypothesis of stabilizing effect of democracy. In following regressions I will test the constituents of the democracy and globalization indexes separately in order to identify more accurate features of them. Before those, I discuss the regression results of two sub samples.

Regression results on sub samples

Table 13 shows the regression result of sub samples of negative and positive bilateral political events. In sub sample regressions variable coefficients seem loose their statistical significance. GOLDSTEIN is still significant with the positive event sub sample at the 10% level, whereas testing with the negative events it is not. However, the sign of the variable is still positive and thus in line with the total sample regression. When testing with positive events, globalization cross variable is statistically significant at the 10% level in specification 6, whereas in the case of negative events it is not. Likewise in the total sample test, democracy cross variable is not robust with either sub sample tests. However, Goldstein variable maintains the robust result in specification 6, showing a parameter estimate of 0,1 with statistically significant at the 5%. This suggests that the moderating effect of globalization occur still slightly in case of positive events,

but not with the negative effects. The observations that the variables seem to loose their robustness in sub sample regressions imply that the trend is not linear for positive and negative events. On the other hand, halving the sample size also influences the results. Most importantly, this result suggests that the market reaction to positive events differs from the reactions to negative events. However, the signs of the parameters in sub sample tests and the results of total sample tests are in the line with my previous analysis. More detailed analysis of the differences between positive and negative event reactions I leave for studies to come.

TABLE 13: OLS REGRESSION RESULTS, SUB SAMPLES

The table reports the results for OLS regression on cumulative abnormal returns in stock markets of 29 target countries. Specifications 1-3 show the effects of negative bilateral events and specifications 4-6 shows the positive bilateral events targeted to the target countries. GOLDSTEIN variable symbolizes the severity of the political event in confltive-cooperative scale. GLOB and DEMOC denote the level of globalization and democracy of each country, respectively. Cross variables (multiplication with GOLDSTEIN) depicts the interaction between the specific country characteristic factor and political event intensity value. MV/GDP, LNGDP are used as alternative control variables to catch the effect of relative stock market size and the size of the economy, respectively. Natural logarithmic transformation, denoted as LN, is made for continuous GDP variable. T-test values are reported in parentheses. ***, **, * denote significance at the 0.01, 0.05, 0.1 level, respectively. Country dummies (only in specifications 1 and 4) and year dummies are used as control variables. Constant terms and dummies are included in the model but not reported in this table.

Dependent Variable	Cumulative Abnormal Returns (%)					
	Negative Bilateral Events			Positive Bilateral Events		
Specification	1	2	3	4	5	6
Independent variables						
GOLDSTEIN	0,0060	0,0038	0,0353	0,0134 *	-0,0202	0,1049 **
	(0,834)	(0,954)	(0,679)	(1,766)	(-0,303)	(2,052)
DEMOC		0,0033 *			-0,0007	
		(1,889)			(-0,256)	
GLOB			0,0007			0,0010
			(0,489)			(0,451)
DEMOC x GOLDSTEIN		0,0004			0,0004	
		(0,055)			(0,615)	
GLOB x GOLDSTEIN			-0,0004			-0,0012 *
			(-0,537)			(-1,835)
Control variables						
MV/GDP		-0,01568			-0,0463 **	
		(-0,646)			(-2,052)	
LN GDP			0,0148 *			-0,0075
			(1,723)			(-0,955)
Adjusted R2	.002	.002	.002	.002	.001	.001
Number of observations	19 880	19 880	19 880	24 951	24 951	24 951

The source and the target countries of the news are Australia, Belgium, Canada, Chile, Denmark, Finland, France, Germany, India, Ireland, Italy, Japan, Korea, Malaysia, Mexico, Netherlands, New Zealand, Norway, Philippine, Singapore, South Africa, Spain, Sweden, Switzerland, Taiwan, Thailand, Turkey, United Kingdom and United States.

6.4.2 Parameter estimates of democracy constituent variables

Table 14 summarizes the OLS regression results of CARs by using constituents of democracy index as independent variables. In these regressions I employ the total sample of both positive and negative events. Similar to earlier regression, I test the cross variables of political feature and Goldstein separately one by one. It seems that only *Political culture* and *Civil liberties* constituents show statistically significance in their cross variables, whereas the interaction terms using *Electoral process and pluralism*, *Functioning of the government* and *Political participation* indicators do not. In specification 4 and 5, both POLITC.CULTURE x GOLDSTEIN and CIVIL LIBERTIES x GOLDSTEIN interaction terms have negative signs and are statistically significant at the 10% level, whereas Goldstein variables are positive and significant at the 5% level.

In contrast to the parameter estimates of total democracy variable, some of its constituents show some significant results. The result suggests that the stock market sensitivity to political events decreases slightly with increasing political culture. Also, markets tend to react less to political events in countries whose civil liberties are in a higher level. Although the result is not very robust statistically, it provides interesting implication on the democratic features. The implication that stock markets are more stabile in countries which have stronger political culture and stronger civil liberties supports the analysis of Fearon (1994) and Tomz (2007) that suggest that democratic features, and especially political active citizens, increase the domestic audience cost and thus enhances the communication in international context. My result confirms their analysis with an empirically evidence from stock markets.

TABLE 14: OLS REGRESSION RESULTS, DEMOCRACY INDEX CONSTITUENTS

The table reports OLS regression results of CARs in stock markets of 29 target countries. GOLDSTEIN denotes political event intensity level in confltive-cooperative scale. ELECT. PROCESS, GOV.FUNCTIONING, POLITIC. PARTICIPATION, POLITC.CULTURE, CIVIL LIBERTIES denote ranking scores of country democracy constituents, i.e. Electoral process and pluralism, Functioning of goverment, Political participation, Political culture and Civili liberties. Cross variables (multiplication with GOLDSTEIN) depicts the interaction between the country characteristic factor and political event intensity value. MV/GDP, LNGDP are alternative control variables to catch the effect of relative stock market size and the size of the economy, respectively. Natural logarithmic transformations, denoted as LN, are made for continuous variables. T-test values are reported in parentheses. ***, **, * denote significance at the 0.01, 0.05, 0.1 level, respectively. Country dummies (only in specification 1) and year dummies are used as control variables. Constant terms and yeardummies are included in the model but not reported in this table.

Dependent Variable	Cumulative Abnormal Returns (%)				
Specification	1	2	3	4	5
Independent variables					
GOLDSTEIN	-0,0114	0,0326	0,0109	0,0462 **	0,0663 **
	(-0,363)	(1,362)	(0,609)	(2,189)	(1,995)
ELECT.PROCESS	0,0009	0,0001	0,0011	0,0012	0,0011
	(0,589)	(0,858)	(0,756)	(0,878)	(0,773)
GOV.FUNCTIONING	-0,0005	-0,0001	-0,0010	-0,0004	-0,0009
	(-0,409)	(-0,066)	(-0,775)	(-0,338)	(-0,726)
POLITIC.PARTICIPATION	-0,0002	-0,0002	0,00003	-0,00022	0,00003
	(-0,260)	(-0,248)	(0,031)	(-0,260)	(0,974)
POLITIC.CULTURE	0,0013	0,0013	0,0007	0,0019 *	0,0007
	(1,350)	(1,356)	(0,661)	(1,838)	(0,614)
CIVIL LIBERTIES	0,0002	0,0001	0,0004	0,0001	0,0012
	(0,087)	(0,058)	(0,215)	(0,028)	(0,586)
ELECT.PROCESS x GOLDSTEIN	0,0002				
	(0,681)				
GOV.FUNCTIONING x GOLDSTEIN		0,0003			
		(0,724)			
POLITIC.PARTICIPATION x GOLDSTEIN			-0,00002		
			(-0,058)		
POLITIC.CULTURE x GOLDSTEIN				-0,00046 *	
				(-1,746)	
CIVIL LIBERTIES x GOLDSTEIN					-0,00064 *
					(-1,708)
Control variables					
MV/GDP	-0,0348 **	-0,0352 **		-0,0001 **	
	(-1,973)	(-1,994)		(-0,011)	
LNGDP			-0,0001		0,0003
			(-0,011)		(0,050)
Adjusted R2	.001	.001	.001	.001	.001
Number of observations	44 832	44 832	44 832	44 832	44 832

The source and the target countries of the news are Australia, Belgium, Canada, Chile, Denmark, Finland, France, Germany, India, Ireland, Italy, Japan, Korea, Malaysia, Mexico, Netherlands, New Zealand, Norway, Philippine, Singapore, South Africa, Spain, Sweden, Switzerland, Taiwan, Thailand, Turkey, United Kingdom and United States.

6.4.3 Parameter estimates of globalization constituent variables

Table 15 shows regression results of globalization index constituents and other independent variables measuring countries interconnectedness and economic characteristics. In specifications 1-3 I use the similar procedure as above; I include Goldstein variable and all constituents of the main ranking index in the same specification and separately run regression for each interaction term.

The cross variables of globalization constituents and Goldstein are all negative, which is in line with the earlier results. Hence, the economic interpretation of the constituents of globalization seem to imply that also all the sub categories of globalization have stabilizing effect to stock market. However, political globalization (POLIT.GLOB x GOLDSTEIN) is not statistically significant, whereas the social and economic globalization (SOCIALGLOB x GOLDSTEIN, ECONOMICGLOB x GOLDSTEIN) are statistically significant at the 1% and 5% levels, respectively. Social globalization seems to be more robust variable to explain market sensitivity to political events than economic globalization, as both economic and statistical values are higher in SOCIALGLOB x GOLDSTEIN parameter.

In addition to economic globalization constituent I test economic interconnectedness with some alternative variables. I examine the effects of absolute export level, relative export level and relative size of the stock markets. The relative variables EXPORT/GDP x GOLDSTEIN and MV/GDP x GOLDSTEIN are not robust and do not seem to explain market sensitivity to political events. On the other hand, the absolute amount of exports flows, transformed with natural logarithmic, (LN EXPORT x GOLDSTEIN) seems to be statistically significant at the 1% level (specification 4). Also the GOLDSTEIN variable receives a positive coefficient, which is significant at the 1% level. The result is similar with absolute import values (x GOLDSTEIN) and GDP (x GOLDSTEIN), not presented in the table. Thus the sensitivity of markets seems to decrease when absolute economic size increases. The economic size seems to be thus more important factor for market sensitivity than the relative trade flows or the relative size of the stock market value.

TABLE 15: OLS REGRESSION RESULTS, GLOBALIZATION INDEX CONSTITUENTS AND VARIANTS

The table reports OLS regression results of CARs in stock markets of 29 target countries. GOLDSTEIN denotes political event intensity level in confltive-cooperative scale. SOCIALGLOB, ECONOMICGLOB, POLITIC.GLOB denote the ranking score of country globalization constituents Social, Economic and Political globalization. LN EXPORT denote the country specific export values. EXPORT/GDPs denote relative export value of the country. Cross variables (multiplication with GOLDSTEIN) depicts the interaction between the country characteristic factor and political event intensity value. MV/GDP, LNGDP are alternative control variables to catch the effect of relative stock market size and the size of the economy, respectively. Natural logarithmic transformations, denoted as LN, are made for continuous variables. T-test values are reported in parentheses. ***, **, * denote significance at the 0.01, 0.05, 0.1 level, respectively. Constant terms and yeardummies are included in the model but not reported in this table.

Dependent Variable	Cumulative Abnormal Returns (%)					
Specification	1	2	3	4	5	6
Independent variables						
GOLDSTEIN	0,06165 ***	0,05427 **	0,04208	0,08398 ***	0,00978 **	0,01325
	(3,824)	(2,513)	(1,312)	(4,136)	(2,271)	(1,631)
SOCIALGLOB	0,00280 **	0,00190	0,00189			
	(2,094)	(1,395)	(1,382)			
ECONOMICGLOB	-0,00288 *	-0,00264	-0,00342 *			
	(-1,795)	(-1,403)	(-1,856)			
POLITIC.GLOB	-0,00098	-0,00071	-0,00019			
	(-0,976)	(-0,570)	(-0,139)			
SOCIALGLOB x GOLDSTEIN	-0,00071 ***					
	(-3,304)					
ECONOMICGLOB x GOLDSTEIN		-0,00061 **				
		(-2,097)				
POLITIC.GLOB x GOLDSTEIN			-0,00036			
			(-1,019)			
LN EXPORT				0,01764 *		
				(1,886)		
LN EXPORT x GOLDSTEIN				-0,01233 ***		
				(-3,711)		
EXPORT/GDP					0,00332	
					(0,124)	
EXPORT/GDP x GOLDSTEIN					-0,00003	
					(-0,004)	
MV/GDP x GOLDSTEIN						-0,00327
						(-0,487)
Control variables						
MV/GDP	-0,00193			-0,02424		-0,02043
	(-1,120)			(-1,535)		(-1,166)
LN GDP		-0,00332	-0,00378		0,00231	
		(-0,368)	(-0,419)		(0,339)	
Adjusted R2	.001	.001	.001	.001	.001	.001
Number of observations	44 832	44 832	44 832	44 832	44 832	44 832

The source and the target countries of the news are Australia, Belgium, Canada, Chile, Denmark, Finland, France, Germany, India, Ireland, Italy, Japan, Korea, Malaysia, Mexico, Netherlands, New Zealand, Norway, Philippine, Singapore, South Africa, Spain, Sweden, Switzerland, Taiwan, Thailand, Turkey, United Kingdom and United States.

6.4.4 Robustness analysis of OLS regression

In order to get parameter estimates that have good properties, the OLS regression has to meet certain rules, known as Gauss Markov assumptions, i.e. expected value of error terms is zero, error terms have constant variance (homoscedasticity) and covariance of error terms is zero (uncorrelatedness). In each specification I construct the regression model so that the assumptions are violated as little as possible. In addition to possible heteroscedasticity and autocorrelation problems, I pay attention to common problems of multicollinearity.

Heteroscedasticity occurs if the variance of error terms changes. This may cause the OLS estimators to be unbiased even if they are still linear. According to OLS conditions, error terms are expected to have identical distributions. I alleviate this specific problem by using logarithmic transformations if required. According to the OLS conditions there also should not be any systematic dependence between the error terms. Autocorrelation occurs if the error terms are not independent. This may cause problems to standard error estimates and thus to the values of t-statistics. To identify possible autocorrelation problems in the model, I use Durbin-Watson d-statistics. If the d-value is 0 there is perfect positive autocorrelation, whereas d-value of 4 indicates perfect negative autocorrelation. In my regression the observed d-statistics values tend to stay relative close to value 2, implying that the uncorrelatedness of error terms is not a problem in my OLS regression models.

Multicollinearity occurs if the predictor variables are strongly correlated in the multivariate regression. This may lead to large standard errors and thus low t-statistic values. I try to avoid multicollinearity by minimizing the number of highly correlated independent variables in the same model. I use VIF, i.e. variance inflation factor to detect multicollinearity in the model. It seems that VIF values of insignificant variables stay below 5 indicating low levels of multicollinearity.

Naturally, when using cross variables and their factors in the same specification, there is multicollinearity and high VIF values. However, this is not a problem if parameter estimates are statistically significant. Also by using a fairly large data sample I am able to reduce the large standard errors caused by the multicollinearity. This way I am also able to obtain more precise

parameter estimate. I increase the robustness of the multivariate model also by using different control variables. In addition to the market size controls, the models are controlled with year and country dummies depending on the specifications.

7 Conclusions

Background

The studies of international relations and political economics abound with explanations on causes of war and peace. The basis of rational theories is that the international system is anarchic and countries face a constant dilemma of security, i.e. countries cannot be sure of each other's intensions. These informational theories argue that facilitating communication between countries is a road to peace. In comparison, the liberal peace hypothesis argues that economic interconnection between countries leads to peace; whereas a variant of liberal peace suggests that the democracy is the main determinant of peace. On the other hand it is argued also that peace enhances trade and democracy, which leads the discussion easily to causality problems. In this study I approach the discussion from the financial market perspective and I investigate how stock market reactions can extend the discussion of international relations.

Results

First, using the most intense bilateral political events and testing their cumulative abnormal returns in 32 markets separately I find that stock markets are relatively ignorant to bilateral political events. CARs are not statistically significant either on country level or on sector level. Comparing bilateral events to less political non-economic events, i.e. fatal terrorist attacks; the expectations of investors seem to change more significantly. In fact, many sectors seem to loose significantly as a result of global terrorist attacks. This is especially the case in the Finnish and Korean markets. However, there is not much specific consistency between the sectors, which tend to loose and thus I conclude only that terrorist attacks seems to have negative effects at least in Finnish and Korean markets. These negative results support the prior anecdotal and empirical evidence on terrorist attacks. To conclude my country and sector level analysis, I do not find evidence that very conflictive or cooperative bilateral political events have significant impact on stock markets.

However, by using a whole spectrum of political events types (totally 44 832 events) and market index data of 29 countries, I am able to find interesting evidence on the effects of country specific

political features. My regression results show that features of globalization, specifically the level of social and political integration, as well as two democratic features, i.e. political culture and civil liberties, reduce the sensitivity of stock market to political events. The result is most robust for social and economic globalization. It seems that countries with these characteristics are less sensitive to political signals. I interpret this result not as ignorance of more developed countries to international politics but as evidence that these characteristics have an ability to reduce market uncertainty around political signals.

My results support the evidence of Fearon (1994), Garztke and Li (2003) and Tomz (2007) on factors that increase audience costs of policymakers. Social and economic integration especially seem to act as features that increase audience costs, making policymakers' signals more credible and bluffing more costly. This seems to mitigate the economic consequences of political events, as the stock markets control more efficiently the policymakers. This may have an ability to reduce the security dilemma in international relations as the communication of different parties becomes more transparent.

Implications

My results confirm the analysis that presence of global capital markets and strong integration features are able to stabilize market reactions of political events. My interpretation is that features of international integration (as well as civil liberties and political culture to some extent) decrease the security dilemma between states through a mechanism that makes threats more costly for policymakers. This is reflected as more stabile market reactions of political events. First of all this result provides implications on market efficiency in the context of international relations. This result extends also the traditional liberal/democratic peace literature as it provides new understanding how democratic and integration features actually stabilize economies. In contrast to the classical claim that democracy or trade leads to peace, I am able to show that eventually transparency of information and engagement of the public are very important pacifying factors in international relations.

Further research

Despite the interesting results and implications of this study, this topic needs still lot of additional research. Both the financial and political implications of this study provide various interesting research opportunities. The advancements of the data resources of political events provide many new possibilities for this. The effect of political characteristics could be investigated more in detail by classifying the data differently. Also a wider political and financial data set could be used and larger number of variables could be tested.

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Appendix A:

Components of Index of Globalization

Economic Globalization - Data on Economic Integration [35%]	
1) Actual flows (50%)	Trade (in percent of GDP) (23%) Trade (in percent of GDP) (23%) Foreign Direct Investment (in percent of GDP) (29%) Portfolio Investment (in percent of GDP) (27%) Income payments to foreign nationals (in percent of GDP) (22%)
2) Restrictions (50%)	Hidden Import Barriers (20%) Mean Tariff Rate (30%) Taxes on International Trade (in percent of current revenue) (24%)
Political Globalization - Data on Political Engagement [28%]	
	Capital Account Restrictions (26%) Embassies in Country (34%) Membership in International Organizations (34%) Participation in UN Security Council Missions (32%)
Social Globalization - Data on Social Globalization [38%]	
1) Data on Personal Contact (24%)	Outgoing telephone traffic (31%) Transfers (in percent of GDP) (9%) International Tourism (1%) Telephone Average Costs of Call to USA (33%) Foreign Population (in percent of total population) (26%)
2) Data on Information Flows (39%)	Telephone Mainlines (per 1000 people) (18%) Internet Hosts (per capita) (15%) Internet Users (as a share of population) (18%) Cable Television (per 1000 people) (16%) Daily Newspapers (per 1000 people) (16%) Radios (per 1000 people) (17%)
3) Data on Cultural Proximity (37%)	Number of McDonald's Restaurants (per capita) (100%)

Source: Dreher (2006)